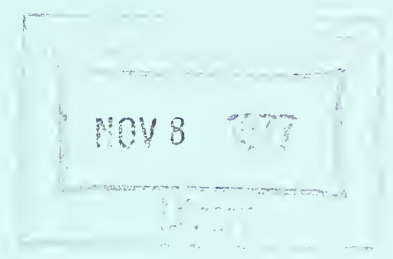


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AN ECONOMIC HISTORY OF FIVE MIDWESTERN RAILROADS



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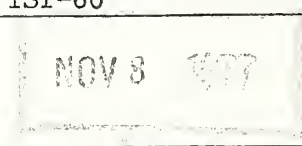


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P r e f a c e

This report is one of a series being written for the University Research Program, U.S. Department of Transportation, to present analyses of the results obtained using the multiregional input-output (MRIO) model for the United States. An original series of 21 reports prepared for the Economic Development Administration, U.S. Department of Commerce, contained explanations of the methodology used for assembling the MRIO data and of the procedures employed to implement the model. Most of those reports have now been rewritten for publication by Lexington Books, D.C. Heath and Company, Lexington, Massachusetts in a series of six volumes entitled Multiregional Input-Output Analysis. Five of the six volumes are now available.

The present report was written to complement John Pucher's DOT No. 14 report, "Projections of 1980 Freight Demands for Selected Railroads." Gary Kaitz provides important background for the Pucher study by first explaining the four basic economic factors that affected the early development of railroads in the Midwest: growth of railroad regulations; increased competition from other modes of transportation; rate of return on investment; and empire building. He then shows which of these factors was most important in the development of the five midwestern railroads being considered. In both reports, the focus has been on the midwestern railroads because the generally depressed economic condition of many of the railroads in this part of the country makes bankruptcy a strong possibility. One of the five

railroads discussed--the Rock Island--is already bankrupt. The others are the Chicago & North Western, the Burlington Northern, the Milwaukee Road, and the Soo Line.

Constructive criticism of the material presented in this report would be appreciated.

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November, 1976

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Gary M. Kaitz

AN ECONOMIC HISTORY OF FIVE MIDWESTERN RAILROADS

by

Gary M. Kaitz

Most American railroads today are in financial difficulties.

Several of the largest eastern lines are bankrupt, causing potential harm to the areas they serve. Under the assumption that railroads are economically beneficial for a region, the federal government has begun to aid them. The United States Railway Association (USRA) was created to help with the reorganization of bankrupt railroads and to provide them with financial assistance. Additionally, Amtrak, a private corporation, has been formed to operate commuter services, most of which were and still are unprofitable, with the U.S. government making up the deficit.

Conrail, another private corporation, was recently organized by the USRA to operate six major northeastern railroads--the Penn Central, Erie-Lackawanna, Reading, Lehigh Valley, Ann Arbor, and New Jersey Central--all of which are bankrupt. Conrail is expected, with substantial government assistance, to eventually become self-sufficient. It is also possible, though unlikely, that Conrail may later be in a position to repay its government loans. So far, the USRA has received \$6.4 billion, primarily to set up Conrail.

The USRA divides the United States roughly into four regions: the Northeast, the Midwest, the South, and the West. Since most railroads in the Northeast are already bankrupt, the USRA decided to act there first (by creating Conrail). It is generally believed that many

railroads in the Midwest will soon be bankrupt, while most railroads in the South and West are still financially sound. Thus, attention is beginning to be focussed on the midwestern railroads. The USRA is considering many alternatives to aid these lines, one such alternative being the geographical expansion of Conrail.

In this report, the emphasis is on five major midwestern railroads, several of which are likely to become bankrupt within the next few years, and one of which--the Rock Island--is already bankrupt. The economic history of the five railroads is traced here to clarify their current financial condition and to aid the USRA, as well as the Department of Transportation itself, in anticipating their future needs, so as to provide effective federal assistance should that become advisable. The five railroads are:

- 1) The Chicago & North Western,¹
- 2) The Burlington Northern,
- 3) The Milwaukee Road--officially the Chicago, Milwaukee, St. Paul, & Pacific,
- 4) The Rock Island--officially the Chicago, Rock Island, & Pacific, and
- 5) The Soo Line.

¹In using railroad names, an ampersand is used to connect words within a railroad title, while an "and" is used to connect two or more titles. Thus, although the official name of the company is "the Chicago and North Western," the company is referred to in this report as "the Chicago & North Western," whereas two companies are referred to as, say, "the Rock Island and the Soo Line."

FEDERAL AID TO RAILROADS

Federal aid to railroads is not new. The first bill to aid railroads was passed on September 20, 1850. It granted more than two million acres of federally owned land in Illinois to the State of Illinois for the purpose of building a state railroad. (The railroad was later organized into the Illinois Central.) But this was not the first use of land grants to aid in the development of transportation. Up to 1850, government and private developers of highways (wagon trails) and canals had been granted 3.5 million acres of land each, or 7.0 million in all. Although railroad land grants were very controversial, by the time the last grant was awarded--in 1906--approximately 223 million acres of land had been granted, of which 180 million acres (81 percent) were eventually claimed by railroads.² The lands not used by the railroads were sold by them to the public as a means of acquiring capital, and, in time, promoting profitable business for the lines by spurring land development. Any assessment of the railroads' profits from the sale of these lands depends on the method of accounting used. Ellis and others [17], for example, made an estimate that profits totaled slightly over 700 million dollars between 1850 and 1940, by which time most of the lands had been sold.

²Land grants were often conditioned upon the actual building of a railroad line. Since the grants were sometimes used by the railroads as collateral on federal loans, the land was occasionally reclaimed by the government when loans were defaulted. Also, Congress would sometimes reverse itself and reclaim lands granted but not yet legally deeded to the railroad.

A railroad that received a land grant actually received only a strip of land--typically six to ten miles wide--along each side of a proposed railroad line. This strip was divided into one-mile squares, or sections, with the railroad receiving alternate sections and the government retaining the other sections. This plan allowed the government to profit from land grants as well. The theory was that the railroad line, when completed, and the railroad's promotion of the new land, would increase the value of the land retained by the government. Since the land was expected to more than double in value by the time the railroad was completed, theoretically the land grants would cost the government nothing. (See Appendix A for additional information on the land grant program.) This early aid played a major role in the expansion of railroads into the Midwest, and later into the Far West, and only a slightly lesser role in the South.

During World War I, the federal government took complete control of all railroads. In December 1917 it set up policy- and decision-making headquarters in Washington and opened regional offices to implement the decisions and actually operate the railroads. Federal control lasted until March 1920. During that time, railroads were guaranteed annual funds equivalent to their average net operating incomes for the preceding three-year period.

THE PROBLEM WITH RAILROADS TODAY IS . . .

Since World War I, railroad profits have generally declined. The major causes of this decline are: (1) the growth of federal regu-

lation of railroads through the Interstate Commerce Commission, which railroad people say has set up rate regulations and abandonment and merger restrictions that have placed unfair burdens on the railroads, both absolutely and relative to the comparatively unregulated trucks, automobiles, airlines, pipelines, and waterways; (2) increased competition from the other modes of transportation, often with federal aid; (3) the inability of railroads to attract capital, much needed especially to keep operating systems up to date, and the related problem, peculiar to some midwestern railroads, of expansion to the West Coast, often unprofitable, creating a burdensome debt; and (4) the effects of the decline in the power of the empire builders.

Regulation--The Interstate Commerce Commission

An in-depth study of the Interstate Commerce Commission is beyond the scope of this paper. A brief outline, though, may be helpful.

Government regulation of the railroads began when individual states in the 1860's and 1870's, reacting to pressure from local farmers, enacted legislation collectively known as the "Granger Movement." The farmers were upset because the high rates railroad companies were charging for transporting agricultural goods resulted in unreasonably high profits. As farmers had no alternative mode of transportation to get their goods to the market, they were forced to pay whatever rate the railroads set. In an attempt to alleviate the

situation, they turned to their state governments. The pressure thus created resulted in the passage by the Wisconsin State Legislature in 1874 of the Potter Bill, which set maximum first-class passenger rates at 4 cents a mile and similar rates for other classes and for freight, all well below current prices. This was the first case in the United States of government regulation of the railroads. An injunction by the Wisconsin Supreme Court was needed to compel the railroads to conform to the new law. They did conform, but in retaliation stopped all new construction and cut back services drastically. This resulted in almost immediate cessation of economic growth in the state. Public reaction was so strong that in 1876 a new wave of pro-railroad politicians was elected, one of the most vocal being Governor Harrison Lodington, who immediately called for the repeal of the Potter Bill. The Vance Bill, which effectively repealed the Potter Bill, was passed that year, quickly ending the powerful, but short-lived, Granger Movement.

In 1877, the principle of government regulation of railroads was upheld by the Supreme Court. The first Interstate Commerce Act was enacted in 1877 to establish the Interstate Commerce Commission (ICC), but the Commission was empowered only to handle complaints; it had no power to initiate actions until 1910. The Commission was originally entitled to regulate only the interstate commerce of railroads and of combined railroad-waterway traffic. The first regulation of trucks was put into effect in 1935, the first regulation of waterways in 1940. In both of these latter cases, however, the ICC regulations were weak, and still are weak, compared with railroad regulation.

Airways have been regulated since 1938 by the Civil Aeronautics Board (CAB). One major difference between the CAB and the ICC, though, is that the ICC was specifically charged with considering the effects of its decisions on all forms of transportation, while the CAB was directed to consider only the welfare of air transportation.

The effect of all these regulations has been to hinder the ability of the railroads to make a profit, while putting only minor restrictions on their chief competitors. Specifically, regulations have prevented the railroads from completing money-saving mergers and abandoning unprofitable lines and have forced them to offer useful but unprofitable services. Federal rate-setting has hindered the efforts by the railroads to reduce rates to compete with other modes of transportation and to raise rates on profitable lines, especially when sudden increases in traffic would permit extra profit-taking that would enable them to accumulate sufficient operating capital.

Government regulation has also restricted cooperation among railroads. Before regulation, competition was occasionally cutthroat, but more often it was cooperative. Since a few men controlled most of the railroads, they found it easy to come together and reach agreement on how to split railroad profits.

The Iowa Pool is one example of these agreements. Three large railroads, the Burlington & Missouri (part of the Burlington Northern), the Rock Island, and the Chicago & North Western, all decided to expand into Iowa in the late 1860's. Competition among the railroads, cutting severely into the profits of all three railroads, led to the formation

of the pool in 1869. According to this agreement, the Burlington & Missouri, the Rock Island, and the Chicago & North Western would each keep 45 percent of its passenger revenue and 50 percent of its freight revenue but would put the rest into a pool to be split equally three ways, thus discouraging competition and encouraging cooperation among the three lines. This agreement lasted until 1883.

Earlier, on September 1, 1869, Alexander Mitchell, president of the Chicago, Milwaukee, & St. Paul, had also been elected president of the Chicago & North Western. Mitchell wanted to combine the two railroads. But backlash resentment caused Mitchell to be voted out of the Chicago & North Western at the next election, forcing him to drop his plans to merge the two railroads. Negotiations for a merger have been held twice since. A merger plan was rejected by the ICC in 1938, and merger negotiations begun in 1960 collapsed in 1969 when the stock of the Chicago & North Western fell drastically.

The large railroads also found it easy to work together against the smaller railroads. Small railroad companies were often formed to build feeder routes from specific towns to the big railroad lines, or to expand into territory the big railroads had not yet reached. The large railroad company would expand by patiently waiting for an adjacent line to go bankrupt, sometimes with the help of the successful railroad, which would then move in and buy the bankrupt line, including its already-laid track, at a price considerably below the real value of the new line. (The most common price was probably 10 percent of real value.) Occasionally the big company would set up and finance a puppet

company, which would in turn purchase several bankrupt lines. This policy allowed the big company to have monopoly-like control of railroad traffic, while giving the appearance--particularly to state legislators--that the railroad lines were still locally owned.

This tactic was especially useful for acquiring land grants. Although lands were granted by the federal government, the actual administering of the grants, including decisions as to which railroads received grants, was at the state level. The state legislature, which rated the grants, usually favored local interests over outside groups (see, for example, the description on pages 36-37 of this report of the Burlington & Missouri).

Competition--Alternate Modes of Transportation

With the early development of the internal combustion engine, trucks actually helped the railroads. Trucks were originally too poorly designed for long travel, and highways did not exist for long trips. Trucks served mainly as feeders to the railroad lines, and for this purpose, they were more efficient than the expensive, rarely used, feeder railroad lines. Railroads have traditionally lost money on their feeder lines but have gained it back on their main lines. When trucks were improved and the road system was constructed in the 1940's, and especially later, from 1960 to 1975, when the interstate-highway system was developed, trucks began to make major inroads on railroad freight traffic. The railroads have also lost freight traffic to waterways, pipelines, and airlines. As a result of all these factors, railroad

freight tonnage has remained fairly constant since 1945, with the expansion in total freight tonnage hauled being absorbed by other modes of transportation.

Passenger-travel competition has hurt railroads even more. Railroads have experienced a continuous decline in passenger traffic since the 1920's, when the automobile became popular. Now, trains have to compete with buses and airlines as well.

The effectiveness of alternate modes of transportation in competing with railroads can be seen in Table 1. This table shows the steady decline of railroad tonnage freight traffic as a percentage of total traffic from 1940 to 1973 from 61 to 38 percent. Most of this traffic has been diverted from the railways to motor vehicles and oil pipelines, while as late as 1973 the airways still carried an insignificant percentage (0.2 percent) of total traffic. A trend that should be noted, however, is that the rate of decline in railroad traffic is also steadily slowing, suggesting that the overall railroad percentage should soon level off.

An additional word should be added concerning the use of ton-miles as opposed to tons. Tons of freight shipped represents a measure of freight shipped, but it is an incomplete picture. The more useful term, ton-miles, used here, represents a weighted measure. Tons shipped is multiplied by the miles each ton is shipped, giving a more accurate account of the transportation involved.

Measurement in ton-miles does have a bias, though, putting more emphasis on long hauls than on short hauls. The comparative advantage

Table 1

VOLUME OF INTERCITY FREIGHT TRAFFIC BY MODE AND PERCENTAGE DISTRIBUTION, 1926-1973
(Billion Ton Miles)

Year	Total Intercity Freight Traffic		Railroads		Motor Vehicles		Inland Waterways		Oil Pipelines		Airways	
	Volume	Percent	Volume	Percent of Total	Volume	Percent of Total	Volume	Percent of Total	Volume	Percent of Total	Volume	Percent of Total
1926	n.a.	100.0	n.a.	75.4	n.a.	3.9	n.a.	n.a.	16.8	n.a.	n.a.	n.a.
1936	n.a.	100.0	n.a.	64.6	n.a.	7.7	n.a.	n.a.	19.6	n.a.	n.a.	n.a.
1940	651	100.0	412	63.2	62	9.5	118	18.1	59	9.1	*	0.002
1945	1,072	100.0	736	68.6	67	6.2	143	13.3	127	11.8	0.1	0.008
1950	1,094	100.0	628	57.4	173	15.8	163	14.9	129	11.8	0.3	0.029
1955	1,298	100.0	655	50.4	223	17.2	217	16.7	203	15.7	0.6	0.037
1960	1,330	100.0	595	44.7	285	21.5	220	16.6	229	17.2	0.8	0.058
1965	1,651	100.0	721	43.7	359	21.8	262	15.9	306	18.6	1.9	0.116
1970	1,936	100.0	771	39.8	412	21.3	319	16.5	431	22.3	3.3	0.170
1973	2,231	100.0	858	38.4	505	22.6	358	16.0	507	22.7	3.9	0.175

n.a. = not available

* = less than 50 million ton miles

NOTE: Percentages may not add due to rounding. Data for the airways are presented with additional detail to show trends. Inland waterways include Great Lakes shipping.

SOURCE: U.S. Bureau of the Census. Statistical Abstract of the United States, 1975. Washington, D.C.: U.S. Government Printing Office, 1975, p. 562.

of railroads is in long hauls. So Table 1 has a slight built-in bias in favor of the railroads.

Railroads were heavily subsidized in the late 19th century but have been left alone in the 20th century until recently, when financial aid has been given to selected bankrupt lines, as was noted earlier. Meanwhile, the U.S. interstate-highway system, which benefits automobiles and trucks, has been built entirely by federal and state governments to complement the many roads built by states and localities.

Airways have also received heavy subsidies. From 1925 to 1967, approximately \$11.9 billion had been spent by the federal government on the establishment, maintenance, and operation of the federal airways system, developed to aid air transport [36, Chap. 33]. One obvious example is the number of publicly owned airports in the country. The Alaska pipeline is another example of public subsidy of a mode of transportation that competes with railroads.

Return on Investment

All of the factors mentioned above have cut considerably into the profit margins of the railroads. Railroads are capital-intensive. Huge amounts of capital are required to build them, and a continual flow of capital is required to maintain and modernize them. Yet even in the good years of the early 1900's railroads returned only a one to three percent profit on capital investment. This rate is much too low to attract needed capital. As a result, railroad equipment deteriorates, railroad efficiency declines, and railroad profits go down,

even further reducing the rate of return, thus creating a vicious cycle. This is the serious problem that most railroads face today.

Table 2 shows the rates of return on investment for railroads and for four other major modes of transportation (the only major mode missing is airways) for the years 1958 through 1974. The table clearly shows that motor carriers (mainly trucks) and pipelines have had a very healthy return on investment and that inland and ocean-traveling water carriers have also had a healthy return on investment except for the recession period of the early 1970's. Meanwhile, the return on investment for railroads has remained quite low during this period, reaching its highest point of 3.9 percent in 1966, a figure still well below the return paid by simply placing money in an ordinary savings account.

During the late 19th century, railroads capitalizing on the rapid economic growth within the United States, and particularly on generous railroad grants, reaped large profits. The period from the turn of the century to World War I saw constant increases in railroad traffic. But ever-stiffening federal regulations and the end of the land grant program kept the profits of the railroads fairly low (a three to six percent return on investment, on the average).

When control was returned to the railroad companies, after federal control during and immediately following World War I, the railroad situation was a mess. There were cries of gross government mismanagement. The accusations were probably well-founded--the government had not been prepared to handle the task of national con-

Table 2
 RATE OF RETURN, BY MODE, 1958-1974
 (Percent)

Year	Railroad	Motor Carrier	Water Carrier ^a	Maritime Carrier	Pipeline
1958	2.91	15.20	9.87	5.73	16.48
1959	2.85	20.28	8.57	6.44	17.46
1960	2.21	11.53	8.54	3.49	17.01
1961	2.04	17.83	9.68	4.05	17.22
1962	2.77	19.22	10.64	9.04	17.68
1963	3.07	18.53	13.15	6.35	15.85
1964	3.22	20.22	13.38	9.36	14.60
1965	3.73	22.56	15.23	8.10	15.38
1966	3.92	19.47	14.99	10.23	14.84
1967	2.48	15.07	14.04	8.40	14.89
1968	2.52	21.18	12.28	11.00	13.42
1969	2.38	17.23	8.13	8.23	9.90
1970	1.75	9.00	10.02	5.35	10.46
1971	2.17	17.17	9.90	4.29	10.01
1972	2.49	16.28	10.37	6.31	9.91
1973	2.52	15.14	8.62	3.26	10.46
1974	1.74	11.16	6.73	17.67	9.18

^aInland and coastal

NOTE: Return on net investment = net "railway" operating income ÷ net investment in transportation property and equipment plus working capital.

SOURCE: Interstate Commerce Commission. Annual Report on the Statistics of Railways in the United States (1958-1974). U.S. Government Printing Office, 1959-1975.

trol. But in a sense, the government was being blamed for a totally different problem, the general lack of capital (due to the low return on investment) and its damaging effects, which were just beginning to be felt.

Most railroads were able to survive in the 1920's, but the rates of return on investment were so low that they were totally unprepared to weather the storm caused by the Great Depression, which struck in 1929. The real effect of the Depression on the railroads hit in the 1930's as other businesses cut back production or simply ceased to operate. The Chicago & North Western, for example, suffered through a freight traffic decline from 1929 to 1932 of 18, 25, and 33 percent, respectively, each year. The late 1930's were not much better, as maintenance and labor costs began to rise rapidly (and have continued to rise steadily ever since). In addition, the effect of truck competition began to be strongly felt in the late 1930's.

World War II was a blessing for the railroads. American involvement in the war brought about a tremendous growth of commodity production in the United States, which benefited all modes of transportation. After the war, the growth of Japan as an industrial power benefited those railroads that extended to the West Coast. Since the war, railroad traffic has remained fairly constant, while costs for everything the railroads use have gone up. As a result, most railroads are operating today with a very small profit margin.

The story of the West Coast extensions best emphasizes the importance of capital investment. Chicago rapidly became a focal point

for midwestern trade because it was fairly centrally located in the Midwest and had an already-existing connection to the East by way of the natural waterways of the Great Lakes and the St. Lawrence River, aided by the Erie Canal. Many small railroads were built along sections of this route, mostly to short-cut small sections of the water route. Eventually these railroads connected to form several pathways to Chicago from the East. But no eastern railroad had ventured to build beyond Chicago.

With the growth of world trade of U.S. goods (mostly food products) in the late 19th century, midwestern businessmen began looking for faster ways to transport their commodities to port. Train lines from Chicago southward to the Gulf of Mexico were found to be slightly faster than the eastern route, but this advantage was offset by the fact that the warmer climate caused the food products to spoil more quickly. Since the southern ports served the same markets as the eastern ports anyway, mostly to Europe, the southern route failed to gain much popularity. One railroad, the Rock Island, has made a reasonable profit, however, from its southern orientation, though primarily due to its being unique in its Chicago-South connections, which include Texas and, indirectly, southern California.

The main alternative to the East Coast ports, however, was, quite naturally, the West Coast ports. The Union Pacific and the Central Pacific railroads were the first North American railroads to extend their lines to the West Coast. But because their lines ran east-west across the middle of the United States, rather

than near the northern or southern borders, they served all major market areas without catering specifically to the needs of any one area. Thus, they were not overly useful to Chicago businessmen.

With the aid of land grants, several businessmen started the Northern Pacific. They succeeded in building a western route. The railroad ran short of capital, however, and went bankrupt in 1893. The bankruptcy was not entirely self-created. James Hill, owner of the Burlington Northern, was putting together his own northwest railroad empire. Hill was working with the Canadian Pacific, a company well financed by the Canadian government, which successfully built a West Coast extension. But Hill wanted his own western route. He obtained a huge land grant, which completely paid for the building of a new West Coast railroad--the Great Northern, which reached the West Coast in 1893. When the Northern Pacific conveniently went bankrupt that same year, Hill moved in and bought the railroad for a below-market value. Thus Hill was able to own two West Coast extensions, while paying for none of the construction costs! He later merged these two railroads with several others to form the Burlington Northern.

Another railroad company, the Milwaukee Road, attempted to compete with the Burlington Northern by building its own West Coast extension. The extension was started around 1900. By this time, the federal government was no longer subsidizing railroads with land grants, and the Milwaukee Road had to finance the entire cost of the extension. It had been a very successful railroad and was able to

raise the capital to pay for the extension. However, the cost so drained its reserves that it has been in and out of bankruptcy ever since.

A third railroad, the Rock Island, tried a unique approach to building a West Coast extension. It built an extension through El Paso, Texas, to Tucson, Arizona. It then purchased another railroad line that went from Tucson to San Francisco, thus completing an extension from Chicago to the West Coast by way of the Southwest. At the same time, it built trunk lines throughout the Deep South connecting Chicago and San Francisco with Louisiana, Tennessee, and Arkansas. This extension quickly drained all of its real assets, and although the owners of the railroad at the time faked assets to finance their spending, the deception was soon discovered, and the Rock Island, too, went bankrupt.

Empire Building

A few rich and powerful men controlled most of the early railroads and most of the affiliated economic activities. One of the related activities popular with these men was the lumber business. Locomotives were wood-burning, so the railroads had to buy large quantities of lumber. Additionally, new railroads sparked new development, and with it considerable new construction, mostly wooden farm buildings, with mortgages owned by the railroads themselves.

The empire building of James Hill in putting together the Burlington Northern has already been recounted. Hill worked closely

with his financial advisor, J. P. Morgan. In order to control the Burlington Northern, Hill and Morgan had to out-duel Edward Harriman, William Rockefeller, and Standard Oil. Harriman controlled the Union Pacific, and although Standard Oil failed to control the Burlington Northern, it did manage to control the Milwaukee Road from 1881 until it went bankrupt in 1925 as a result of the unwise construction of a western extension. The reason for the economically unfeasible extension now becomes obvious. Harriman and Rockefeller could not stand the fact that Hill and Morgan owned a West Coast extension, while they did not!

The empire builders made it hard for small independent railroads to survive. The large railroads would intentionally take a big loss rather than see a small railroad realize a profit. The Soo Line, for example, was created by a collective of local farmers and businessmen explicitly to fight against the ruthless practices of the empire builders, but even the Soo needed outside capital. For a while several Boston capitalists supported the Soo. But eventually its owners had to sell out to one of the big railroads, the Canadian Pacific. The Soo had been successful enough so that the local interests were able to work out a compromise whereby the Soo would retain semi-autonomy and would continue to operate in the interest of local businessmen and farmers.

The growth of Chicago as a midwestern railroad center is attributable to the work of yet another empire builder. William Butler Ogden set out to prove that railroads were the future of the Midwest,

and he put together his own railroad empire, the Chicago & North Western.

A brief discussion of each of the five midwestern railroads considered in the present study, and how the four factors just examined affected each, follows.

THE CHICAGO & NORTH WESTERN RAILROAD

Empire building at first and competition later on were the two dominant factors affecting the development of the Chicago & North Western Railroad. The Chicago & North Western empire was put together by the first of the great midwestern empire builders, William Butler Ogden. Ogden used all of the tricks of empire builders to expand his railroad into a mighty empire. Even after he retired in 1868, the railroad continued to expand rapidly until it reached its peak in 1911. Empire building thus dominated the early history of the Chicago & North Western.

By the late 1800's, the Chicago & North Western was fighting against stiff competition from other midwestern railroads. During the 1900's, the railroad's freight traffic has suffered as a result of competition from alternative modes of transportation as well. The effects of competition have been the major theme of its recent economic history. But its history rightfully starts with the beginning of railroad construction in the Midwest.

In Europe and the eastern United States, trade patterns were established before trains were invented. When railroad lines were

finally built in the eastern United States, they followed the already-established trade routes. But the Midwest and the West were still undeveloped when railroads reached the United States. The Midwest was limited mostly to subsistence farming, with some small trade from hunting and mining. When the farmers reaped a surplus, they had no efficient way to transport their goods to the eastern markets. The only trade routes available were two waterways, the Mississippi River and its tributaries, which run south, and the Great Lakes, which run northeast. As a result, development occurred only in these restricted areas. The maps in Appendix B show this early railroad development. A few enterprising men saw the railroad as a means of expanding agricultural development in the rich farmlands of the Midwest. William Ogden was the first to try out this new idea.

Ogden--The Empire Builder

Ogden built the first midwestern railroad, the Galena & Chicago Union Railroad. Shortly afterward, he put together the Chicago & North Western railway system, expanding mainly by buying up bankrupt and other financially troubled lines. Ogden added to his empire by becoming involved in many related fields. At one point he owned a major portion of the midwestern lumber business--a business on which railroads depended greatly for fuel and for construction related to economic development. Ogden's interests were so varied that he could not even keep his attention focussed on one empire. For example, in 1862 he was elected president of the Union Pacific Railroad. But his empire really began in Chicago.

Several small trade centers had grown up along the Great Lakes. One of them, Chicago, which was incorporated as a city in 1837, elected Ogden its first mayor. Ogden set out to prove that a railroad network feeding the trade center of Chicago was economically feasible for the railroads and for Chicago. But Chicagoans strongly opposed the idea. They believed a railroad would destroy their city: farmers would stop coming into the city, thus ruining trade; and rival cities would build up along the railroad line. They wanted to continue transporting freight by the Great Lakes and the network of plank roads then in existence, which were constructed by merely nailing planks to timbers placed on the ground. (By 1848, two hundred wagons a day were entering the city on the plank-road network.)

Ogden and his associates worked for ten years to get a railroad charter and financial support. When it became apparent that they were not going to get a new charter, they bought the rights to an old one. Ogden was not concerned about where he built his railroad as long as it was built. The charter he purchased was for a railroad to travel between the lead mines of Galena, Illinois, and Chicago. But before construction began, the organization formed to build the railroad went bankrupt, and a reorganization was necessary. On April 5, 1848, the first annual meeting of the reorganized Galena & Chicago Union Railroad was held. Total financing from stock sales, mostly to local farmers, amounted to \$351,800. The directors voted to begin construction immediately between Chicago and the Des Plaines River, eight miles away. Upon completion of this segment, a 31-mile exten-

sion to the town of Elgin was to be built. Future plans called for the final extension 143 miles to Galena, a total distance from Chicago of 182 miles.

In November of 1848, the revitalized line opened, and the first train traveled the eight-mile distance from the Des Plaines River to Chicago. Although the first run was intended just to carry railroad officials, the officials persuaded a farmer headed for Chicago with a wagonload of wheat to let the railroad carry his wheat for him, provided he was allowed to ride along with his wheat. The train traveled only to the Chicago city limits, because the downtown merchants, still opposed to the idea of a railroad, had voted to ban all railroads from the city. However, when they learned a week later that 30 more carloads of wheat were already waiting at the Des Plaines depot for transportation to Chicago, the merchants quickly changed their stance. Ogden had finally convinced the merchants that the railroads were the future for Chicago.

In its first year of operation, the Galena & Chicago Union Railroad earned over \$2,000 a month. The railroad kept expanding--to Elgin in 1850, to Cherry Valley in 1852, and to Freeport in 1853. But it never built out to Galena. The final extension from Freeport to Galena, completed on October 30, 1854, was built by the Illinois Central, one of the many railroads that were quickly built after the Galena & Chicago became successful. By 1857, the Galena & Chicago had 56 locomotives, 1,200 freight and passenger cars, and 260 miles of road.

Meanwhile, Ogden, realizing that the many railroads being built west of Chicago all depended on wood supplies, was buying up as much of the lumber business as he could, building a foundation for his railroad empire. There were accusations of his using his railroad position to benefit himself. In the summer of 1848, he offered to resign, but the majority of the directors objected. With continued protest, he finally did resign, on June 5, 1851. Thirteen years later he was to buy the Galena & Chicago Union Railroad and merge it with another of his railroads, the Chicago & North Western.

After leaving the Galena & Chicago, Ogden went looking for another railroad with which to build his dream empire. The Madison & Beloit Railroad of Wisconsin attracted his attention when the Galena & Chicago made a connection with the Madison & Beloit in 1854. Ogden was shrewd. He patiently waited for the right moment to make his move, but he continued to cherish his dream of owning a huge railroad running throughout the Midwest, a dream that was to become a reality. Sure enough, the Madison & Beloit, after some unwise expansion and a name change to the Chicago, St. Paul, & Fond du Lac Railroad, defaulted in the panic of 1857. Ogden moved in, bought the railroad in 1858, and renamed it the Chicago & North Western Railroad.

Expansion into Minnesota followed the same pattern. Railroad construction in Minnesota had been a disaster. Despite a land grant of over 6 million acres in 1857, and a state loan of \$5 million in 1858, the first railroad line was not completed until 1866. Following the Civil War, many Minnesota railroads were built, but most were

financial failures. The Chicago & North Western, seizing its opportunity, formed a puppet company, the Chicago, St. Paul, Minneapolis, & Omaha Railroad, which bought up at artificially low prices the many bankrupt Minnesota lines.³ The Chicago & North Western moved into Wisconsin by first leasing, in 1866, then later, in 1883, purchasing, the financially troubled Milwaukee & Chicago Railroad, built primarily to provide service between the two cities.

Another large railroad, the Chicago, Milwaukee, & St. Paul, later nicknamed the Milwaukee Road, was being extended into the same areas as the Chicago & North Western. Expansion competition was relatively peaceful in the 1860's. The late 1860's and early 1870's saw the holdings of both of these companies being consolidated in Illinois, Wisconsin, and Iowa, and there were mergers of many small railroads with larger ones. One reason for the slow expansion during this period was the growing resentment of farmers to high railroad profits, which culminated in the Granger Movement.⁴

Competition

By this time, William Ogden had phased out most of his involvement in the Chicago & North Western. But the railroad's directors, feeling pressure from competitors, continued to expand operations. Competition became the main theme of the railroad's history.

³The Chicago, St. Paul, Minneapolis, & Omaha Railroad is completely controlled by the Chicago & North Western but has never been purchased outright.

⁴For a discussion of the Granger Movement, see pages 5-6.

In the late 1870's, competition between the Chicago & North Western and the Milwaukee Road increased. Both companies extended their lines rapidly through Minnesota to get at the rich undeveloped farmlands of the Dakotas. Both reached the Missouri River in South Dakota in 1880. They were forced to stop there, as all land west of the river belonged to the Sioux Indian Reservation. The U.S. government was protecting the Reservation boundaries at the time, mainly because it had no reason not to protect them. The richness of the farmlands had yet to be proven by the railroads, but on July 27, 1874, gold was discovered in the Black Hills, a large mountain range in South Dakota. In 1890, reacting to pressure, the government started making plans to open up the Reservation. Limited new settlement was legalized in 1902, with all restrictions removed in 1904. The Chicago & North Western and the Milwaukee Road both followed the gold boom into the Dakotas. Meanwhile, the Chicago & North Western entered Wyoming in 1886. There were good markets almost immediately in livestock, coal, and oil, and the company was ready to profit from the oil boom of 1895-1920.

Entering the 20th century, Chicago & North Western expansion was slowed sharply as the huge profit margins began to disappear. The Chicago & North Western managed to stay in good shape, however, until the federal government took control during World War I. The railroad showed only modest profits in the 1920's and was in no position to weather the Great Depression that struck in 1929. A major drought in the middle 1930's further reduced grain traffic.

(Grain traffic represented 11 percent of total freight traffic in 1930, 15 percent in 1933, and 10 percent in 1935 [9].) The once mighty Chicago & North Western filed for reorganization, claiming bankruptcy, on June 28, 1935. It was put into federal receivership until March 1, 1945, when it was again able to operate at a profit.

During World War II, a huge increase occurred in all railroad traffic. The government had learned a lesson from its experience in controlling the railroads during World War I and this time left them alone. The Chicago & North Western was in a particularly favorable position because of the excellent management provided by Rowland Williams, who had become its president in 1939. Williams was a realist. He reviewed and eliminated a considerable amount of track on minor lines that could no longer compete with trucks and cars. He exploited the advantages of the very successful high-speed railroad passenger service, one of the few remaining areas where the railroad had the advantage. The only line to show a continual profit during reorganization had been the Twin City run by the '400' engines. This run, begun in 1935, covered the 400 miles between St. Paul-Minneapolis and Chicago in 400 minutes (hence the nickname '400').

Today, the Chicago & North Western Railroad operates 10,236 miles of road, serving the region west of Lake Michigan and south of Lake Superior: Illinois, Iowa, South Dakota, Missouri, Wisconsin, Nebraska, Michigan, Kansas, Minnesota, North Dakota, and Wyoming. Lines reach from Chicago to Milwaukee, Minneapolis-St. Paul, and Omaha, connecting with the Union Pacific, thus forming a part of the trans-

continental route to the Pacific Coast. Traffic is light except on the main lines. The lines serve the industrial, forest, agricultural, dairying, and livestock sections of the Northwest and Midwest (including the important ports of Lake Michigan and Lake Superior), the iron ore ranges of the upper peninsula of Michigan, and a coal field known as the Springfield District of Illinois.

The next pages contain maps of the Chicago & North Western from its start as the Galena & Chicago in 1850 right up to the Chicago & North Western Railroad network of today. They show the early rapid expansion of empire building, which reaped large profits for the railroad. When expansion slowed in the early 1900's, profits declined. The problems of low return on investment and, mainly, the effect of competition from alternate transportation modes have kept the company only marginally profitable since. However, a solid financial base, due partly to the fact that the railroad has never attempted to build a West Coast extension, has kept it out of bankruptcy except for the duration of the Great Depression.

THE BURLINGTON NORTHERN RAILROAD

The Burlington Northern owes its financial strength to the fact that it has not one, but three extensions to the West Coast. All three were constructed with large land grants during the period when the federal government was aiding railroads, thus incurring no burdensome debt. The existence of a West Coast extension, without a debt (that is, the lack of a serious problem related to return on investment), has been a major factor in the success of the Burlington Northern.



Figure 1-A.
The Galena & Chicago Union Railroad, 1850

(Figure 1-B shows the railroad just before consolidation with the Chicago & North Western.)

(Figure 1-C shows the railroad just before consolidation with the Galena & Chicago Union Railroad.)

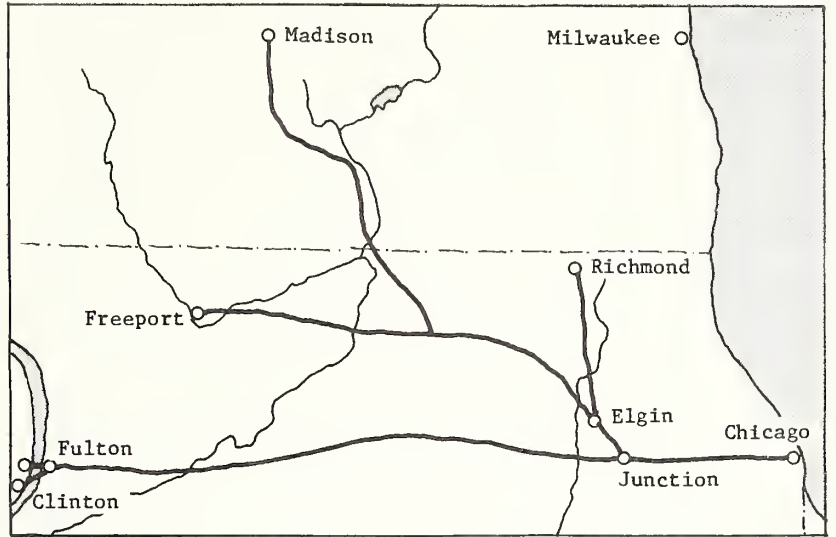


Figure 1-B.
The Galena & Chicago Union Railroad, 1864

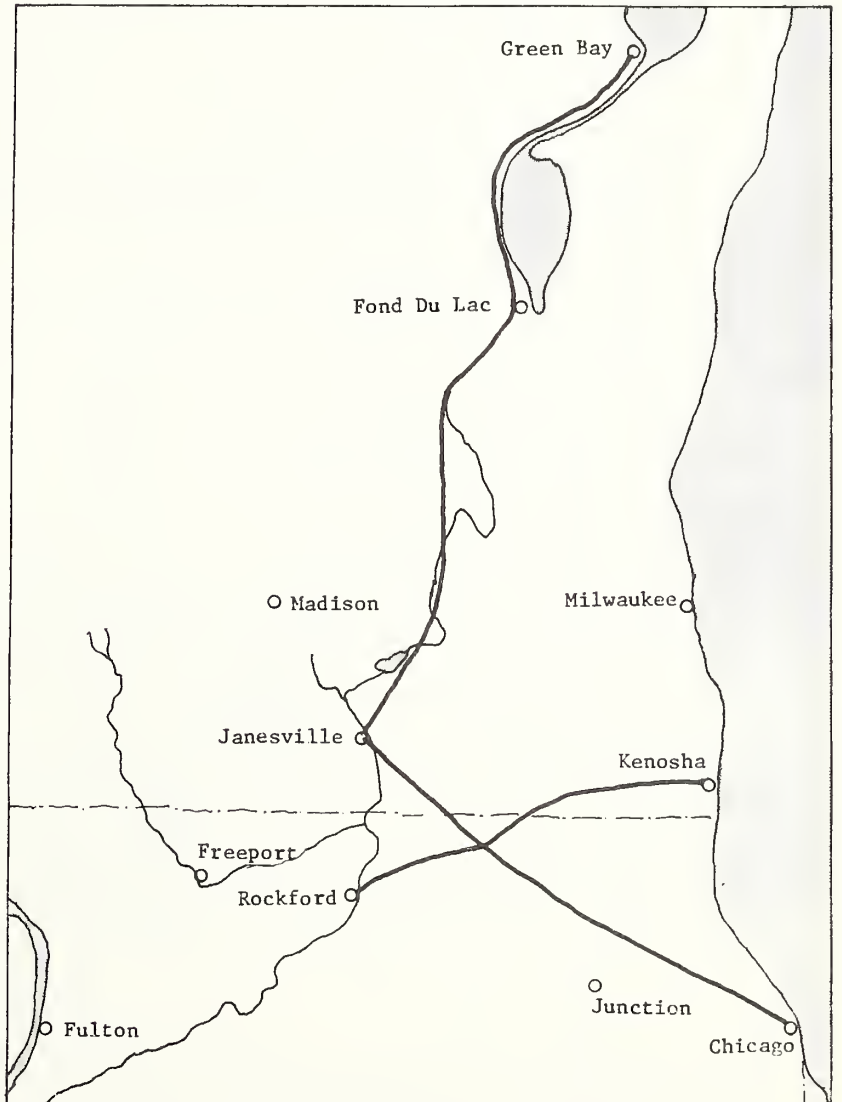


Figure 1-C.
The Chicago & North Western Railroad, 1864

Figure 1. Origin of the Chicago & North Western Railroad

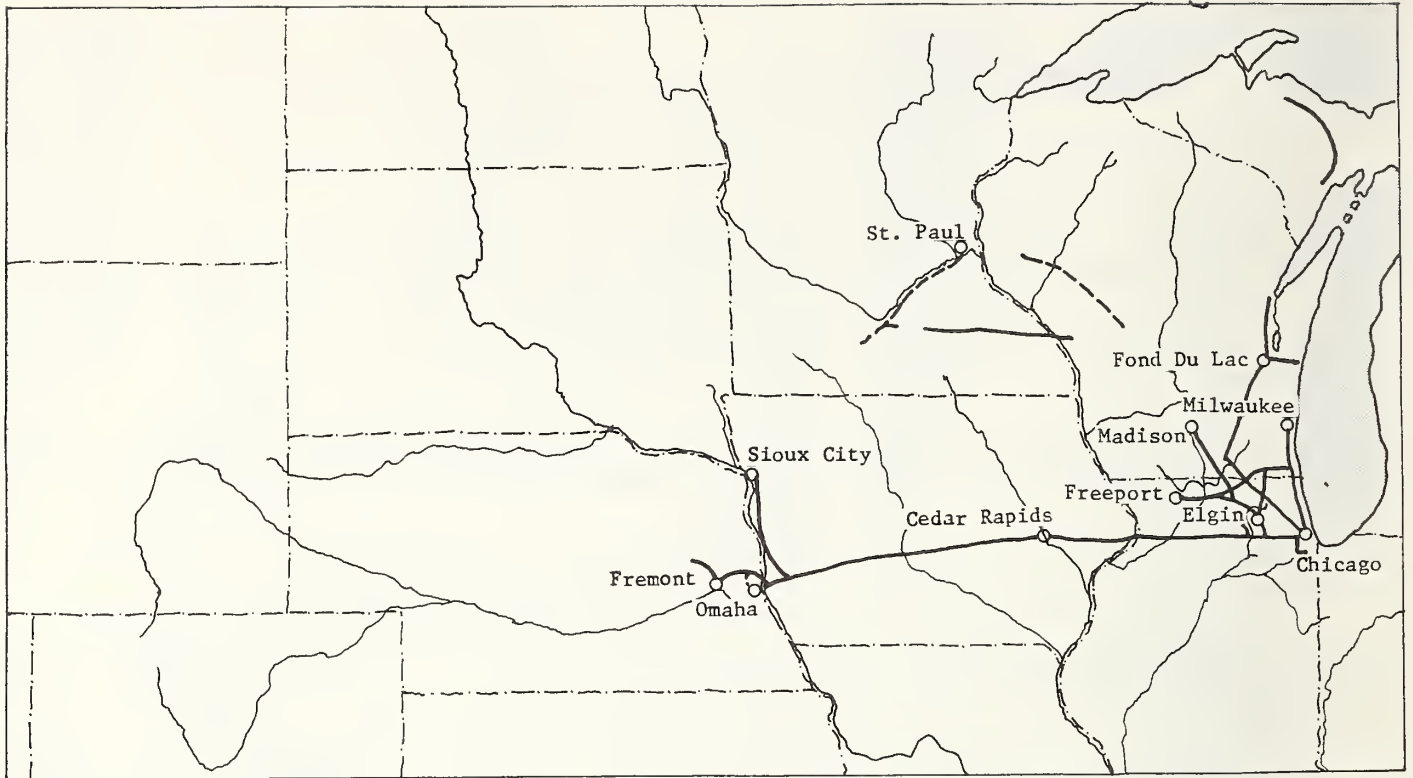


Figure 2. Development of the Chicago & North Western Railroad, 1870

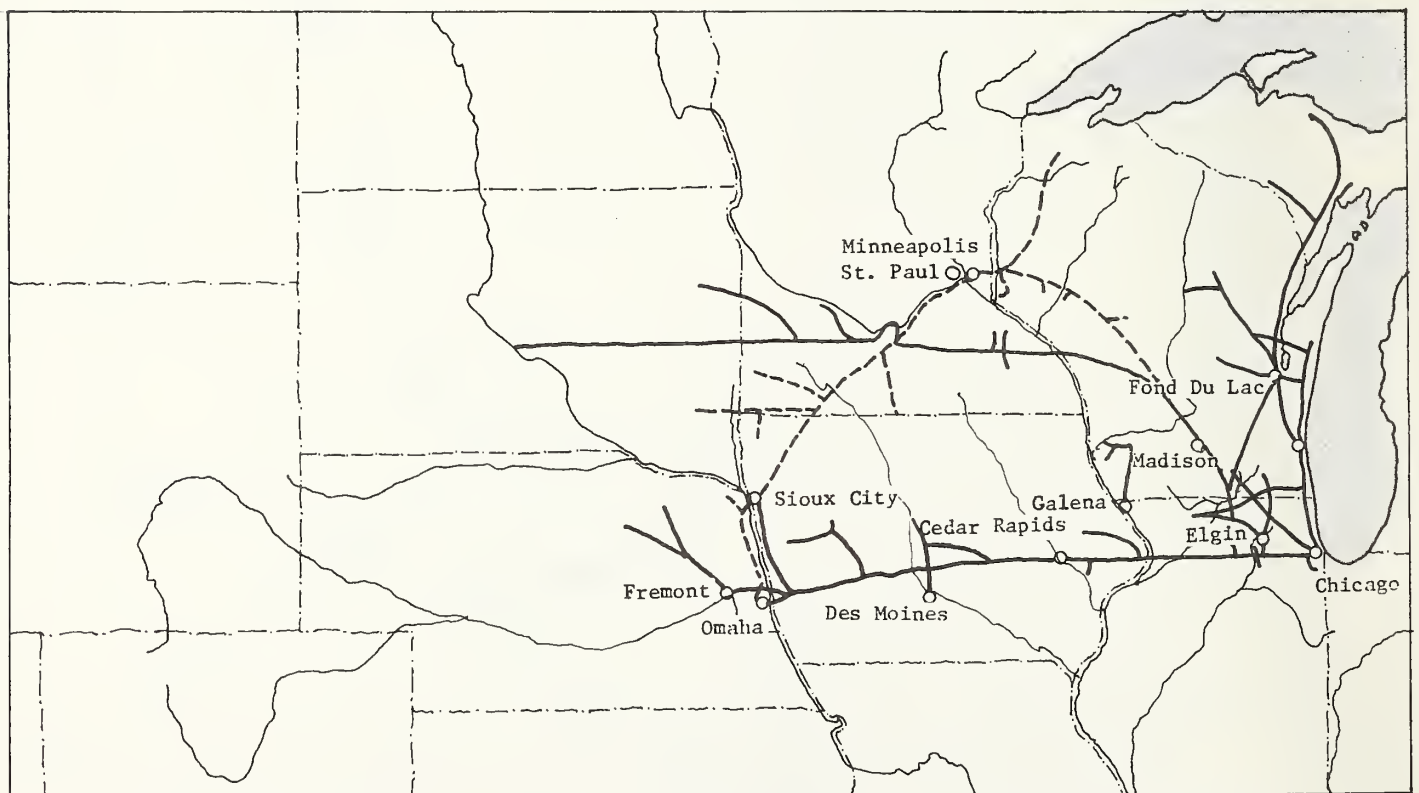


Figure 3. Development of the Chicago & North Western Railroad, 1880

(Note: Dotted lines show the Chicago, St. Paul, Minneapolis, & Omaha Railroad, a privately owned railroad leased to the Chicago & North Western for 999 years.)

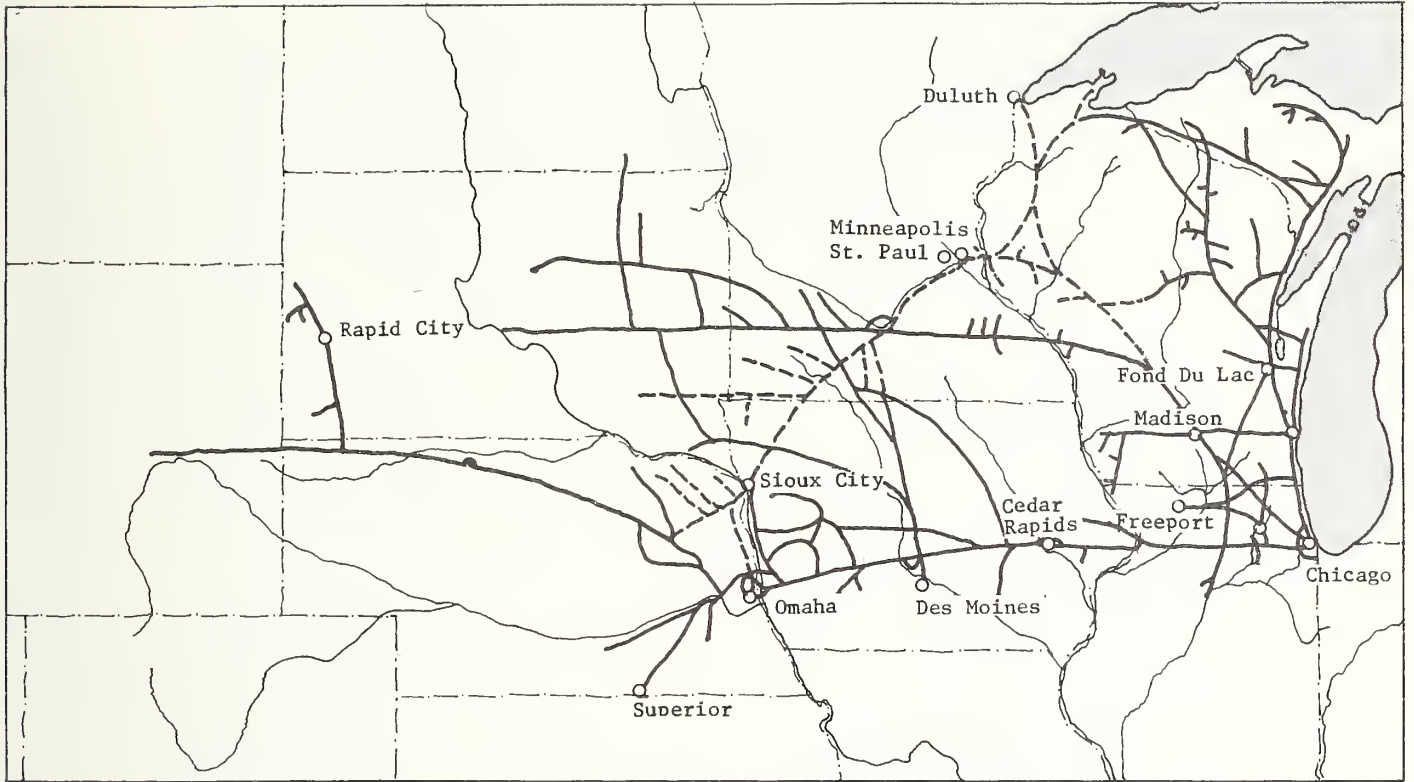


Figure 4. Development of the Chicago & North Western Railroad, 1900

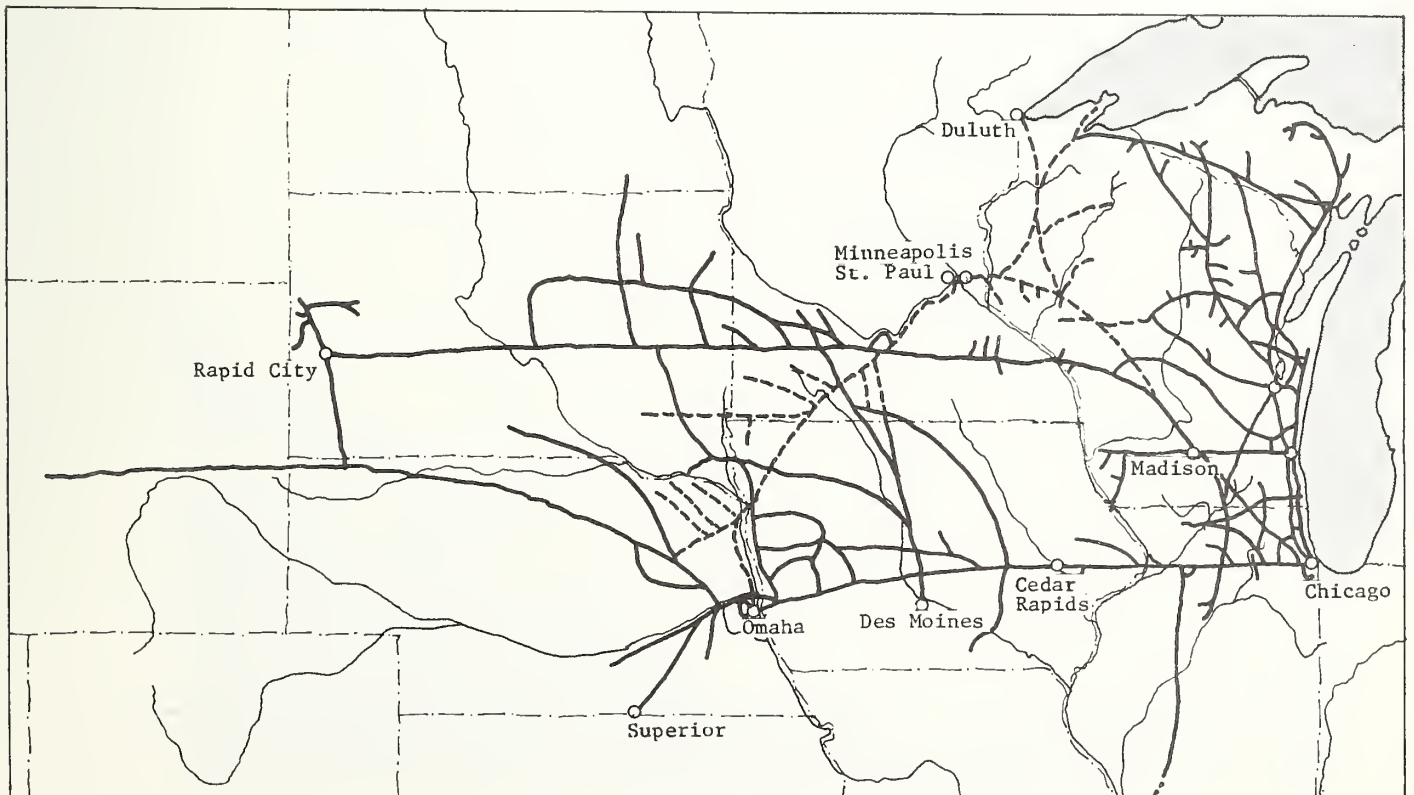


Figure 5. Development of the Chicago & North Western Railroad, 1930

(Note: Dotted lines show the Chicago, St. Paul, Minneapolis, & Omaha Railroad, a privately owned railroad leased to the Chicago & North Western for 999 years.)

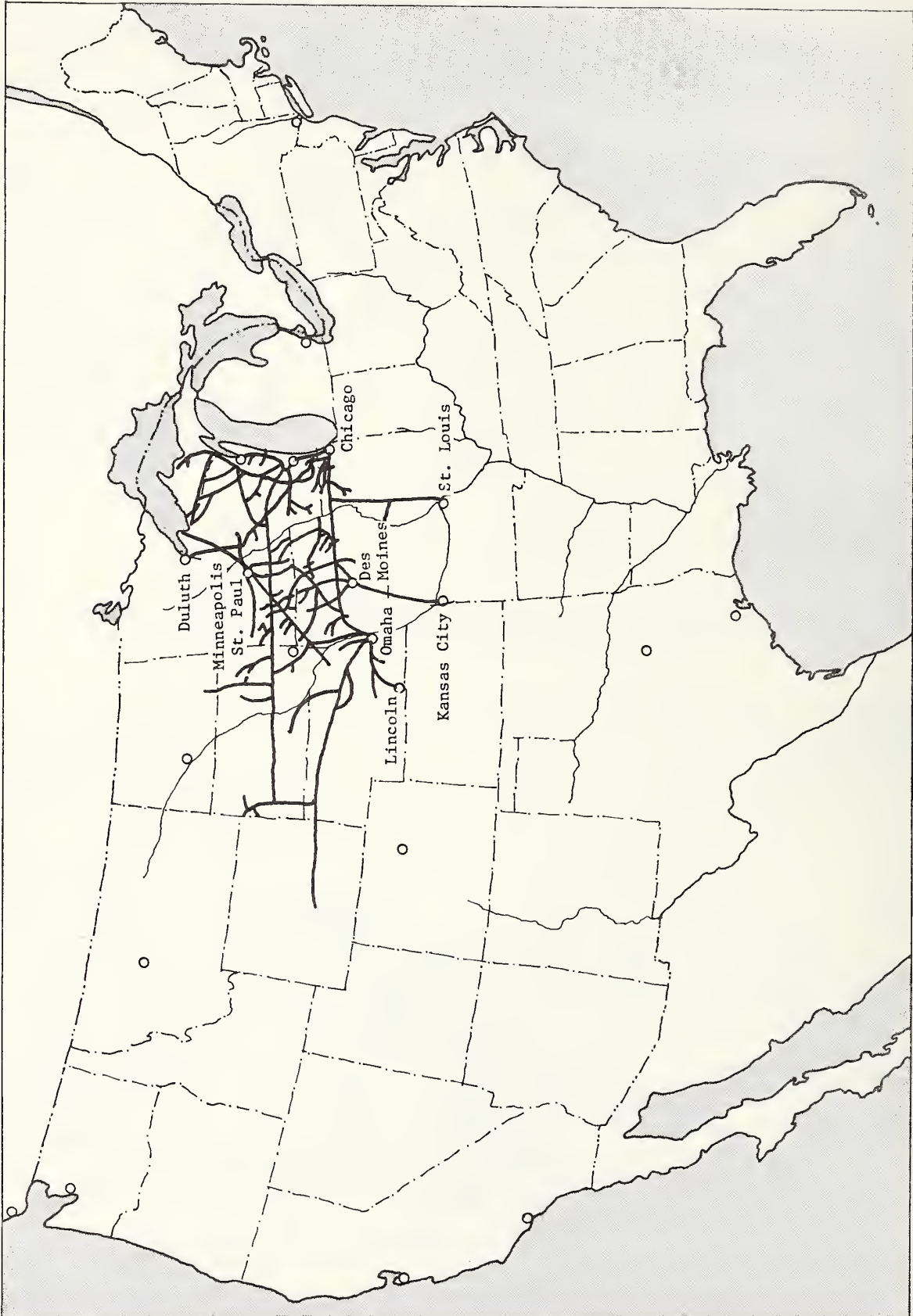


Figure 6. The Chicago & North Western Railroad, 1976

The other major factor in the development of the Burlington Northern was the empire building of James Hill. Hill, another of the great empire builders, built a northwestern railroad, the Great Northern, which connected the Chicago railroad network with the West Coast. Through typically ruthless empire building, Hill was able to purchase two other northwestern railroads, the Northern Pacific and the Pacific Coast.

After acquiring these three railroads, Hill went after the Chicago, Burlington, & Quincy, a midwestern railroad serving mainly as a feeder into Chicago. When Hill gained full control of the Chicago, Burlington, & Quincy, in 1901, fighting off a bid by Standard Oil, the Burlington Northern system was formed.

Hill--The Empire Builder

James Hill began to put together his northern railroad empire in 1878 by purchasing the financially troubled St. Paul & Pacific Railroad and renaming it the St. Paul, Minneapolis, & Manitoba. Wise expansion, combined with several years of bumper grain crops, which also spurred rapid economic growth in the region, turned the railroad into a profitable line.

Hill was also involved in the transcontinental Canadian Pacific Railroad being built at this time, serving as its director until his resignation in 1883, after which he continued to serve as an advisor. He wanted to extend the St. Paul, Minneapolis, & Manitoba to the Pacific Coast. Four railroads already stretched to the West

Coast, three in the United States--the Union Pacific, the Central Pacific, and the Northern Pacific, and one in Canada--the just completed Canadian Pacific. Hill went out of his way to avoid competing with the Canadian Pacific, built by his friends, and the Northern Pacific, which he hoped eventually to purchase. He was convinced that the Northern Pacific would be for sale soon. The St. Paul, Minneapolis, & Manitoba expanded through the Dakotas and Montana and finally, in 1893, to the Puget Sound, on the Pacific Coast. In 1890, the name of the road was changed to the Great Northern.

As it turned out, Hill had been right about the Northern Pacific. First, a major scandal shook it; then in the panic year of 1893, it went bankrupt. (It was a bad year for railroads: the Santa Fe and the Union Pacific both went bankrupt as well.) The directors of the Great Northern moved in to buy the Northern Pacific. But the move was blocked in court under a law prohibiting the unification of parallel and competing railroads. So Hill and his associates, as private individuals, purchased it.

The Great Northern carried mainly lumber. Since Chicago represented the clearing house for the major lumber market, the Midwest, Hill sought a connection into Chicago. He found one in the Chicago, Burlington, & Quincy Railroad. Joining forces with his financial assistant, J. P. Morgan, Hill was able to out-maneuver Edward Henry Harriman, then head of the Union Pacific, who also wanted the Chicago, Burlington, & Quincy. The purchase was made April 17, 1901.

Hill was thus able to establish his eastward lumber trade. To develop a westward trade, Hill's agents persuaded Japanese textile millers to purchase long-stapled American cotton to mix with the short-stapled cotton they were buying from India. The American cotton was shipped north from New Orleans, on to the Hill lines, and out to Seattle for shipment to Japan. Markets also opened up for Minnesota flour and New England cotton goods, both of which sold well in China.

To complement its trade pattern, the Burlington system in 1908 purchased 1,800 miles of line previously operated by the Colorado & Southern Railway. The transaction brought through lines from Cheyenne and Denver, southward to Fort Worth, Dallas, Houston, and Galveston, providing for a new short route from the Pacific Northwest to the Gulf.

Expansion Through the Midwest

The Chicago, Burlington, & Quincy Railroad was itself put together from several smaller lines. One of these, the Aurora Branch Railroad, was built in 1849 by the townspeople of Aurora, Illinois, to connect the city to the prospering Galena & Chicago. At that time, there were numerous half-built, now bankrupt, railroad lines in Michigan. Two ambitious young men, James Frederick Jay and John W. Brooks, backed by financial support from Boston's John Murray Forbes, another of the empire builders, bought a number of these railroads from the State of Michigan and organized them into the Michigan Central Railroad.

The line extended through Michigan to Lake Michigan, where water routes were available to Chicago and to the West, and to various eastern railroads. But the Michigan Southern, a competing railroad company, built directly to Chicago, so the Michigan Central did so as well.

After connecting with Chicago, the directors of the Michigan Central began looking for ways to expand into Illinois. They found one in 1852 when the directors of the Aurora Branch Railroad and the Central Military Tract, an Illinois railroad chartered but not yet built, decided to join forces and built a line from Chicago through Illinois to Burlington, Iowa. But they needed additional financing. The stockholders of the Michigan Central offered their support, and the three companies began a working relationship that eventually led to a merger. When the Aurora Branch reached Burlington, the name was changed to the Chicago, Burlington, & Quincy Railroad Company.

Expansion into Iowa took place in a similar fashion. The Michigan Central officials, eyeing a possible sizeable land grant, gave financial backing to a group from Iowa to build the Burlington & Missouri River Railroad. The Burlington & Missouri was awarded a land grant in 1856.

By 1864, the Burlington & Missouri planned expansion into Nebraska and pressured Congress for a new land grant. The grant allowed the company ten square miles on alternate sections, within a twenty-mile strip on either side of the proposed track. A separate

company, the Burlington & Missouri Railroad of Nebraska, was formed to receive the grant. The same group of investors, now headed by John Forbes, who was gradually expanding his control by new stock purchases, owned all of the railroads mentioned--the Burlington & Missouri Railroad of Nebraska; the Burlington & Missouri of Iowa; the Chicago, Burlington, & Quincy; and the Michigan Central.

The 1870's brought consolidation of the three other railroads into the Chicago, Burlington, & Quincy. In one case, the directors of the Chicago, Burlington, & Quincy and the directors of the Burlington & Missouri of Iowa voted to lease on a perpetual basis the Burlington & Missouri to the Chicago, Burlington, & Quincy, with outright purchase to take place as soon as all stock transactions could be completed. Six of the twelve Chicago, Burlington, & Quincy's directors served on the Burlington & Missouri's board!

Current Situation

Although a merger agreement was under negotiation throughout the 20th century and the Burlington Northern Railroad network operated as if it consisted of one railroad company, a formal merger did not take place until March 2, 1970, when the Northern Pacific Railway Company; the Great Northern Railway Company; the Chicago, Burlington, & Quincy Railroad Company; and the Pacific Coast Railroad Company formally became the Burlington Northern Railroad Company.

Today, the Burlington operates 14,581 miles of main line, and 10,712 miles of branch lines, carrying principally agricultural products, timber, and iron ore.

The Burlington Northern is one of the few railroads in the United States, and the only railroad discussed in this report, not to have experienced bankruptcy on any of its main lines. This is due mainly to its strong position of being both a major midwestern railroad and a major northwestern railroad, allowing it to take advantage of the economic dependence of these two regions on each other. The Burlington was able to enter this position by expanding early with substantial federal aid (through land grants), thus avoiding the creation of a serious debt structure. The Burlington was also, for many years, the only midwestern railroad with a West Coast extension, and today still represents the main connection between Chicago and the Pacific Ocean, as shown in Figure 7. The lack of debt is crucial.

The next two railroads to be discussed in this report, the Milwaukee Road, and the Rock Island Line, both are in weak economic condition due mainly to the large debt they incurred while trying to build West Coast extensions.

THE MILWAUKEE ROAD

Three of the four factors discussed in the third section played a major role in the development of the Milwaukee Road: empire building, West Coast extension (low rate of return on investment), and competition. The Milwaukee Road began as a successful small-scale railroad. It quickly attracted the attention, and came under the control, of Standard Oil (represented by Rockefeller, Harriman, and Stillman), which in addition to its other activities, engaged in extensive railroad empire building.

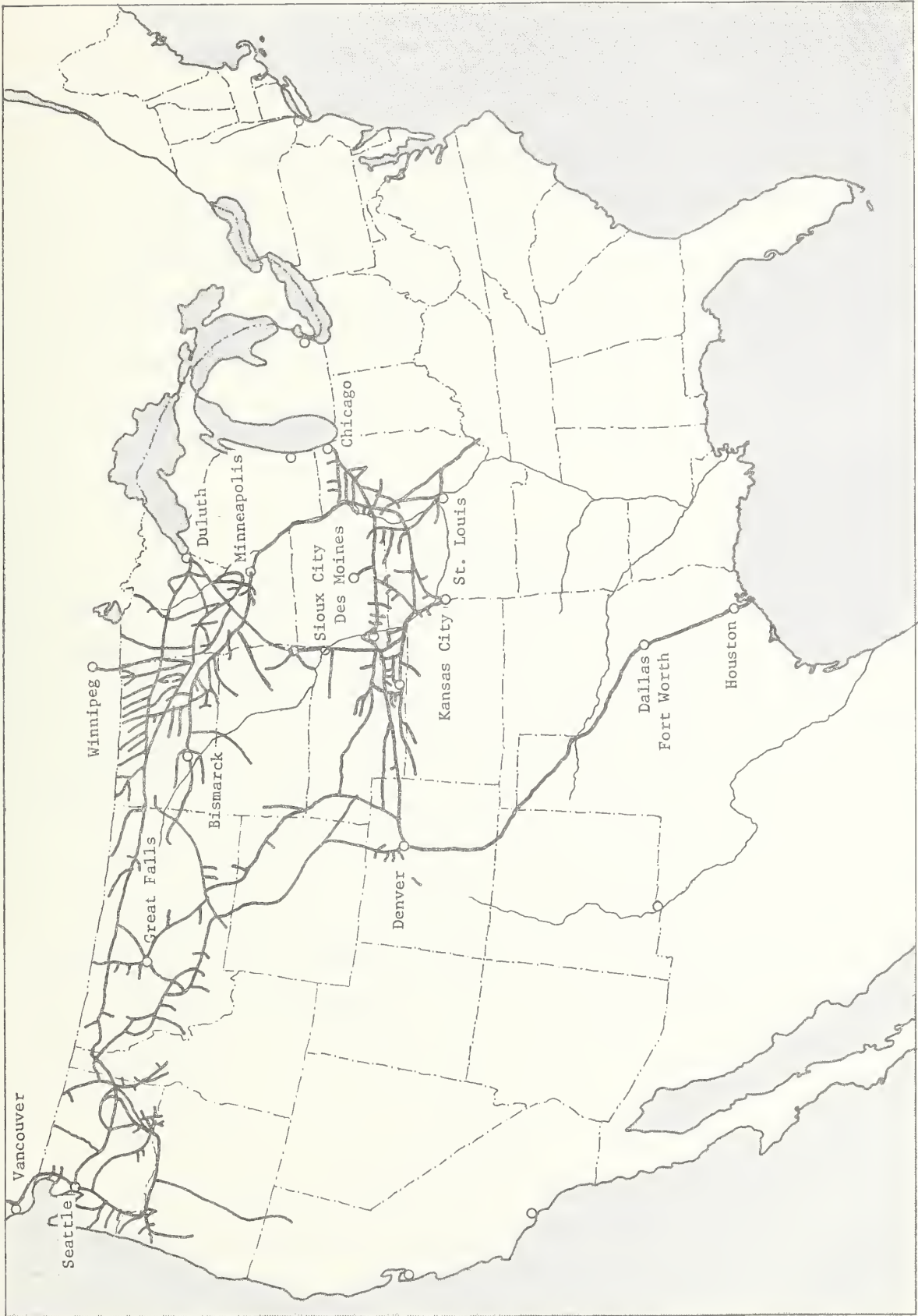


Figure 7. The Burlington Northern Railroad, 1975

To compete with James Hill's Burlington Northern empire, the Milwaukee Road built its own West Coast extension. The move was an economic disaster and created a burdensome debt structure, which pushed it into bankruptcy shortly after World War I. Although the railroad became financially sound during World War II, competition from other railroads, particularly the Burlington Northern, with its West Coast extensions, and from alternate forms of transportation, particularly trucks, has kept the Road's rate of return on investment very low.

Enter the Empire Builders

The Milwaukee Road, which had been chartered in 1863 as the Milwaukee & St. Paul Railway, grew out of a general need for efficient transportation in Wisconsin. Rather than build its own lines, it bought the bankrupt Milwaukee & Prairie du Chien Railway. It was well financed by various Wall Street investors, and prospered under expansion. In the 1880's the railroad expanded into Illinois, the Dakotas, and Missouri, and received land grants to expand into Iowa and Minnesota.

In 1881, William Rockefeller became a director of the Milwaukee Road. Thus began the feud between the J. P. Morgan-James Hill and Standard Oil interests over control of the northwestern railroads, including the Milwaukee Road, which remained under the control of Standard Oil until the Road went bankrupt in 1925.

West Coast Extension

Around the turn of the century, the directors of the Milwaukee Road felt a need to expand to the West Coast to compete with Hill's

Burlington route. Although railroad land grants were no longer available, they were convinced that the expansion would pay for itself by serving as a feeder line and increasing traffic on the main line. Original cost estimates of the western route through the Dakotas, Montana, Idaho, and Washington to the Pacific Coast were \$70 million, but actual construction costs ran to \$234 million. These costs should be compared with those of the Northern Pacific, which had cost \$70 million. The comparison is not entirely valid, however, as the Northern Pacific had received 44 million acres of land grants to help offset its construction cost.

Rising costs, interest payments on the huge debt resulting from the West Coast extension, and the failure of anticipated traffic to materialize, forced the Milwaukee Road to file for bankruptcy on March 17, 1925. The Road was sold to the only bidder for \$140 million on November 22, 1926, and was reorganized as the Chicago, Milwaukee, St. Paul, & Pacific Railroad (still its official name). The efforts to resurrect it came at a very poor time. The Great Depression hit the railroad late in 1929, only three years after the new owners had taken over. It went bankrupt again in 1935, and stayed in bankruptcy until the prosperity of the World War II period allowed it to reorganize again in 1945.

Competition

Revenues began dropping shortly after the war and have continued to decline. The Milwaukee Road has been particularly hard hit by

competition from trucks and cars. Only the industrial growth of Japan in the 1960's, creating long-haul traffic from the Pacific to the Midwest, has kept it out of another bankruptcy.

Today, the Milwaukee Road operates 5,594 miles of main and 9,447 miles of branch lines for a total track mileage of 15,041, as shown in the map on the following page. The road is principally a common carrier of freight, serving the Midwest and the northern tier of the Pacific Northwest states. It extends east of the traditional break point of Chicago to reach important connections to the East and Southeast at Louisville, Kentucky. The road reaches foreign markets through the Great Lakes and Pacific Coast ports, and also through a connection with the Canadian railroads at Sumas, Washington.

The Milwaukee Road also offers commuter service between Chicago and its western and northern suburbs, and intercity passenger service between Chicago, Milwaukee, and the Twin Cities under contract to Amtrak (as of May 1, 1971).

The Milwaukee Road began the 20th century with a burdensome debt structure resulting from its West Coast extension. Fierce competition, added to the problems resulting from a low rate of return on investment, has kept it only marginally profitable.

THE ROCK ISLAND LINE

Competition and a low rate of return on investment have kept the Rock Island Line in and out of bankruptcy. The railroad started out with conservative expansion and prospered. A shift to reckless

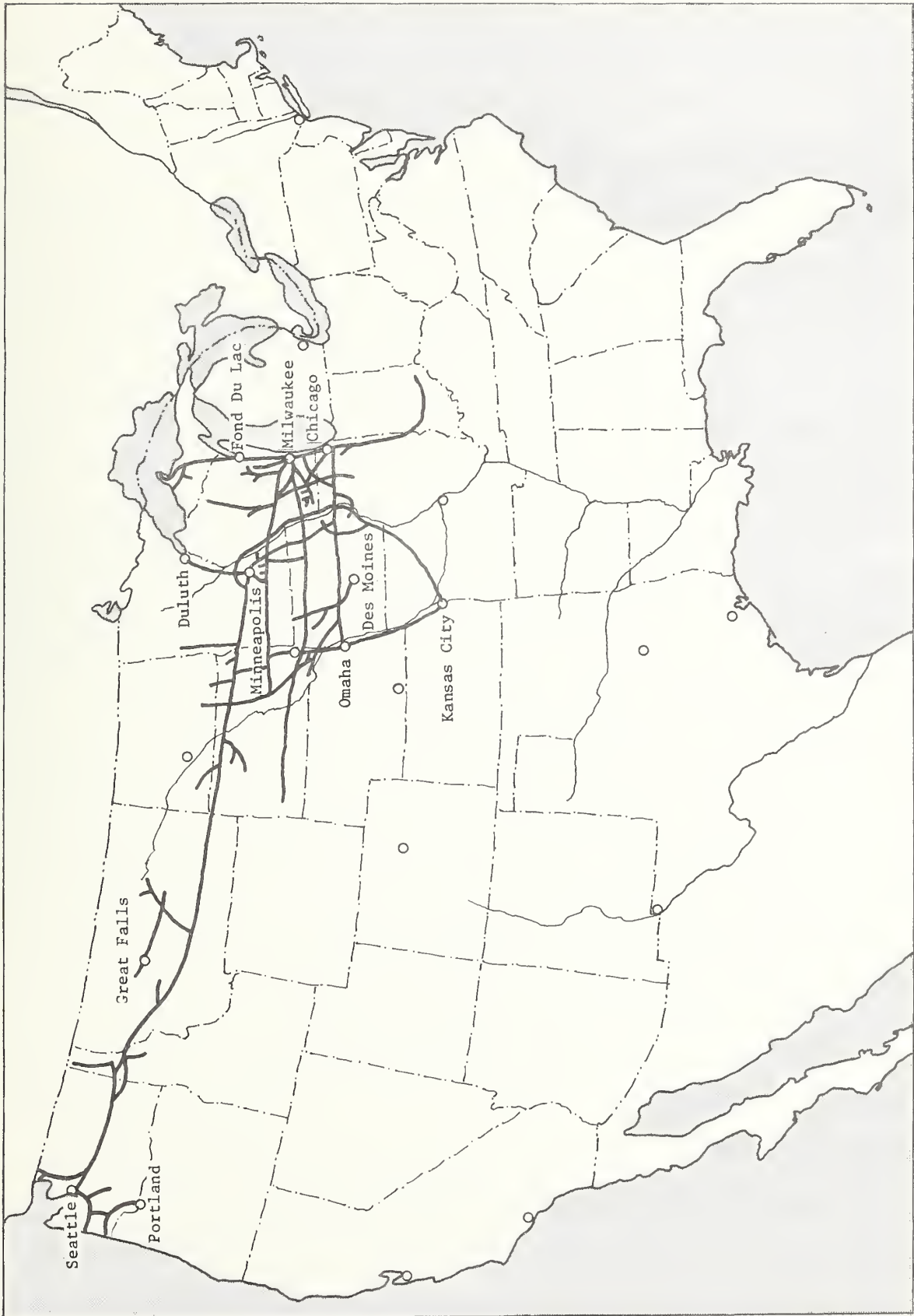


Figure 8. The Milwaukee Road, 1976

expansion, including an attempted extension to the West Coast by way of a winding southern route, resulted in bankruptcy just before the Depression. Although the line recovered nicely during World War II, it has not done well since and is presently bankrupt.

Competition

As part of the railroad boom in Illinois, the original Rock Island Railroad was planned as a connection between Rock Island and LaSalle, Illinois. A charter was obtained in 1847. Expansion to Chicago and reorganization as the Chicago & Rock Island Rail Road (sic) took place in 1854. Expansion into Iowa and a final name-change to the Chicago, Rock Island, & Pacific Railroad occurred respectively in 1865 and 1866, after the financially troubled Mississippi & Missouri Railroad gave up and sold out to the Rock Island. The Rock Island continued expansion to Kansas City, through Missouri and Kansas.

During the period 1893 to 1901, the railroads in competition with the Rock Island, including the Burlington Northern, were reaping large profits from their lines extending to the West Coast. The Rock Island had no West Coast extension and suffered financially from this lack; it was losing business to its competition, because it could only ship part way to the West Coast. But building an extension at this time would have been prohibitively expensive. So it looked for an alternate solution to the problem. In 1883, it tried a working agreement to ship its railroad cars to the West Coast on the Union Pacific tracks, but this agreement soon became meaningless. In order to get the original

agreement, the Rock Island had to allow the Milwaukee Road and the Chicago & North Western Railroad to join in. The Rock Island could not get an advantage over its competitors if they all shared the same advantage. The situation became worse when several smaller lines joined in the agreement in 1884. When the Union Pacific had financial problems, the Rock Island decided it had to have its own extension to the West Coast.

Meanwhile, the line was expanding into Nebraska, Kansas, Colorado, and Oklahoma. This suggested the possibility of a southern route to the West Coast.

The Reid-Moore syndicate, a group of four men, Bill Leeds, Dan Reid, and William and James Moore, aggressive, shady, and good at hiding illegal financial manipulations, gained control of the Rock Island in 1901.

In 1902, the Rock Island leased for 999 years the 1,289-mile Burlington, Cedar Rapids, & Northern Railroad, extending Rock Island service into Minnesota to St. Paul and Minneapolis. By construction and syndicate purchase of the St. Louis & San Francisco Railroad, the Rock Island was able to offer, in 1902, through-service from Chicago to Los Angeles by way of El Paso, Texas, New Mexico, and Tucson, Arizona. Expansion continued in 1903 farther into Texas, in 1904 into Arkansas to Memphis, Tennessee, and into Missouri to St. Louis, and in 1905 into Louisiana.

Rate of Return on Investment

.. Meanwhile, the Rock Island debt increased to \$275 million. Although the railroad's gross revenues were expanding rapidly (\$45 million

in 1904 to \$61 million in 1909), its burdensome debt structure put it into the red. The members of the syndicate managed to cover this up from the time of their purchase of the road in 1901 to 1914, when court decisions against many of their holding companies began to break up their complicated financial structure. In 1915, the syndicate lost control of the railroad, which almost immediately declared bankruptcy. The debt structure and stock structure were cleaned up and reorganized and the railroad was released from receivership in 1917. The companies that had been formed illegally by the syndicate to hide the growing debt were all forced to default. But none of the debts incurred by the railroad itself were defaulted.

In 1921, the oil boom hit Texas and Arkansas. The Rock Island captured most of the new oil traffic. Poor business management, however, combined with the Depression to put the railroad into bankruptcy again. Despite dwindling revenues, it continued to pay dividends through 1931. In 1930, it attempted to purchase controlling stock once again in the St. Louis & San Francisco Railroad, with the intention of forcing a merger. (The Rock Island stock had been lost when the syndicate was forcibly broken up.) On June 7, 1933, bankruptcy was declared. Reorganization plans were indefinitely postponed since revenues were ridiculously low compared with the outstanding debt, but revenues were expected to increase in the future.

In 1935, the courts appointed Ned Durham president of the Rock Island. Durham hired John Farrington as his operating officer. Together, they reorganized and modernized the running of the Rock Island. Their

good management, together with the general prosperity of railroads during World War II, led to bankruptcy reorganization and an end to court jurisdiction in 1947. (The successes of Farrington and Durham were highly praised, particularly in an article entitled "Rock Island Revived" in the December 1944 issue of Fortune Magazine.)

The Rock Island today covers 7,385 miles in 13 states, principally Iowa, Illinois, Minnesota, Kansas, Missouri, Oklahoma, Colorado, Arkansas, and Texas, as shown by the map on the next page. Problems common to all railroads, including the two primary factors already mentioned--increased competition from alternate forms of transportation and low return on investment resulting in low capitalization--have recently taken their toll. The Rock Island declared bankruptcy again on March 17, 1975.

THE SOO LINE

The nickname, "the Soo," has traditionally referred to the Minneapolis, St. Paul, & Sault Ste. Marie Railroad. In 1961, that railroad merged with the Wisconsin Central Railroad and the Duluth, South Shore, & Atlantic Railroad. The newly merged railroad formally adopted the name "Soo Line Railroad."

The Soo Line, by reacting effectively to the potential problems of empire building, West Coast extensions, and competition, is presently in an excellent financial condition. As previously mentioned, it was one of the few lines successfully built without the help of, and in fact in opposition to, the large financial interests of the empire builders.

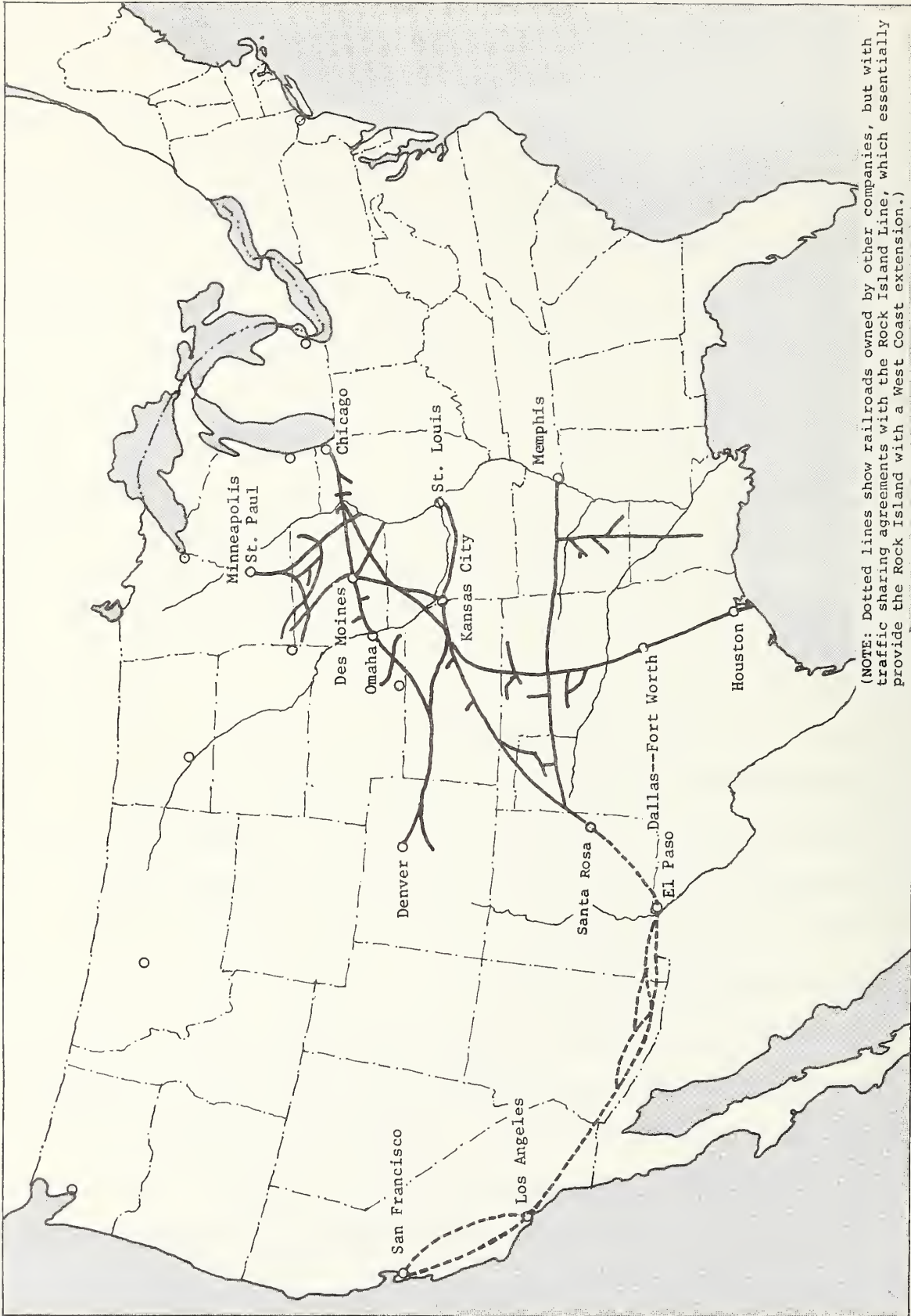


Figure 9. The Rock Island Line, 1976

By avoiding the attempted construction of a West Coast route, it has remained financially stable. But even the Soo Line had to make some concessions to outside investors.

Fighting the Empire Builders

Minnesota and North and South Dakota have excellent land for growing hard spring wheat, yet before 1880 there was no market for this type of wheat, because the wheat mills could not process the hard grains. In the 1880's, technology improved, and the wheat mills of Minneapolis started accepting hard wheat. At the same time, a large market for Minneapolis flour developed in Europe, causing an increased demand for wheat.

But the Chicago railroads were unfriendly to the Minneapolis mills. They charged exorbitant rates and insisted that the flour be shipped through Chicago. As a result, several small railroads, backed by Minneapolis millers seeking independent routes east, were built from Minneapolis to Duluth, where, during the summer, wheat could be shipped east on the Great Lakes. The Chicago railroad interests disliked this new threat to their monopoly. They (the Rock Island and the Northern Pacific in particular) bought up these small new railroads. In the 1880's, while James Hill was advising on the construction of the Canadian Pacific, which built many feeder lines into the United States, Hill (with Chicago interests himself) made sure the Canadian Pacific stayed clear of the non-Chicago shipping routes.

A strong independent railroad was necessary. In 1933, a large group of Minneapolis businessmen built the Minneapolis, Sault Ste. Marie, & Atlantic Railway. This was done with private funding--without land grants. The railroad successfully solved the problem of getting the flour east from Minneapolis.

To fight this new railroad, Hill started buying up wheat from the farms and shipping it on his Northern lines directly to Duluth, by-passing Minneapolis. The wheat was then loaded directly onto Hill's Great Lakes steamers. So the Minneapolis & Pacific Railway was organized in 1888 by Minneapolis interests to compete with Hill in collecting wheat from the farms.

Consolidation--The Minneapolis, St. Paul, &
Sault Ste. Marie Railroad

The Minneapolis railroads were in need of financing. They got it from the Canadian Pacific in return for two concessions: the Canadian Pacific was to receive stock control in the new railroad (just over 50 percent interest), and a major consolidation of the Minneapolis-area railroads was to take place. On June 11, 1888, the Minneapolis & Pacific; the Minneapolis, Sault Ste. Marie, & Atlantic; the Minneapolis & St. Croix; and the Aberdeen, Bismarck, & Northwestern were consolidated into the Minneapolis, St. Paul, & Sault Ste. Marie Railroad. This new railroad extended from the wheat lands of Minnesota and the Dakotas (with some mining--particularly coal) to the Great Lakes ports of Wisconsin, with their connections east.

The Soo Line was hurt by the Depression, going bankrupt in 1937, and reorganizing with the general improvement in the economy in 1944.

The Wisconsin Central Railroad

The Wisconsin Central Railroad was formed in 1897. It expanded, acquiring other lines, but stayed within Wisconsin. Like many other small railroads, it went bankrupt early in the Depression, in 1932, and stayed in receivership until 1954. While the Wisconsin Central was in receivership, the Milwaukee, St. Paul, & Sault Ste. Marie acted as agent of the federal receiver. Traffic is mainly industrial, coal and iron-ore mining, and diversified manufacturing (the largest single element is lumber, shingles, and lathes, with 9 percent of the traffic).

The Duluth, South Shore, and Atlantic Railway

The Duluth, South Shore, & Atlantic Railway was formed in 1887 as a consolidation of several small mining railroads. Traffic today is increasingly made up of forest products and miscellaneous manufacturing; mining freight is steadily declining.

The Merger

On January 1, 1961, these three railroads merged into the Soo Line Railroad Company. At present the Canadian Pacific owns 56 percent of the voting stock of the Soo. The Soo operates 4,588 miles of road, serving northern Michigan, Wisconsin, Minnesota, North Dakota, eastern Montana, northern South Dakota, and northern Illinois. (See map on page 53.) It serves very few large cities, and none exclusively, so the line has never depended on large passenger-traffic revenue. For that reason, it has been considerably less hurt by the advances of the

automobile than its neighbors, the Northern Pacific and the Great Northern. Passenger service on the Soo was slowly phased out and was discontinued completely in 1967.

Since the merger of 1961, extensive and efficient use of computers and a revised rate and service system (taking into account those commodities and routes where the railroad competes directly with trucks) have kept the Soo profitable. In fact, at the beginning of the 1970's, the Soo's freight tonnage was slowly but steadily increasing.

At a time when many railroads have succumbed to the increased competition, mainly from trucks, and to low capital investment due to a low rate of return on investment, the Soo has faced these problems and overcome them. This must be taken as a hopeful sign for the future of midwestern railroads. Midwestern railroads may someday once again become generally prosperous.

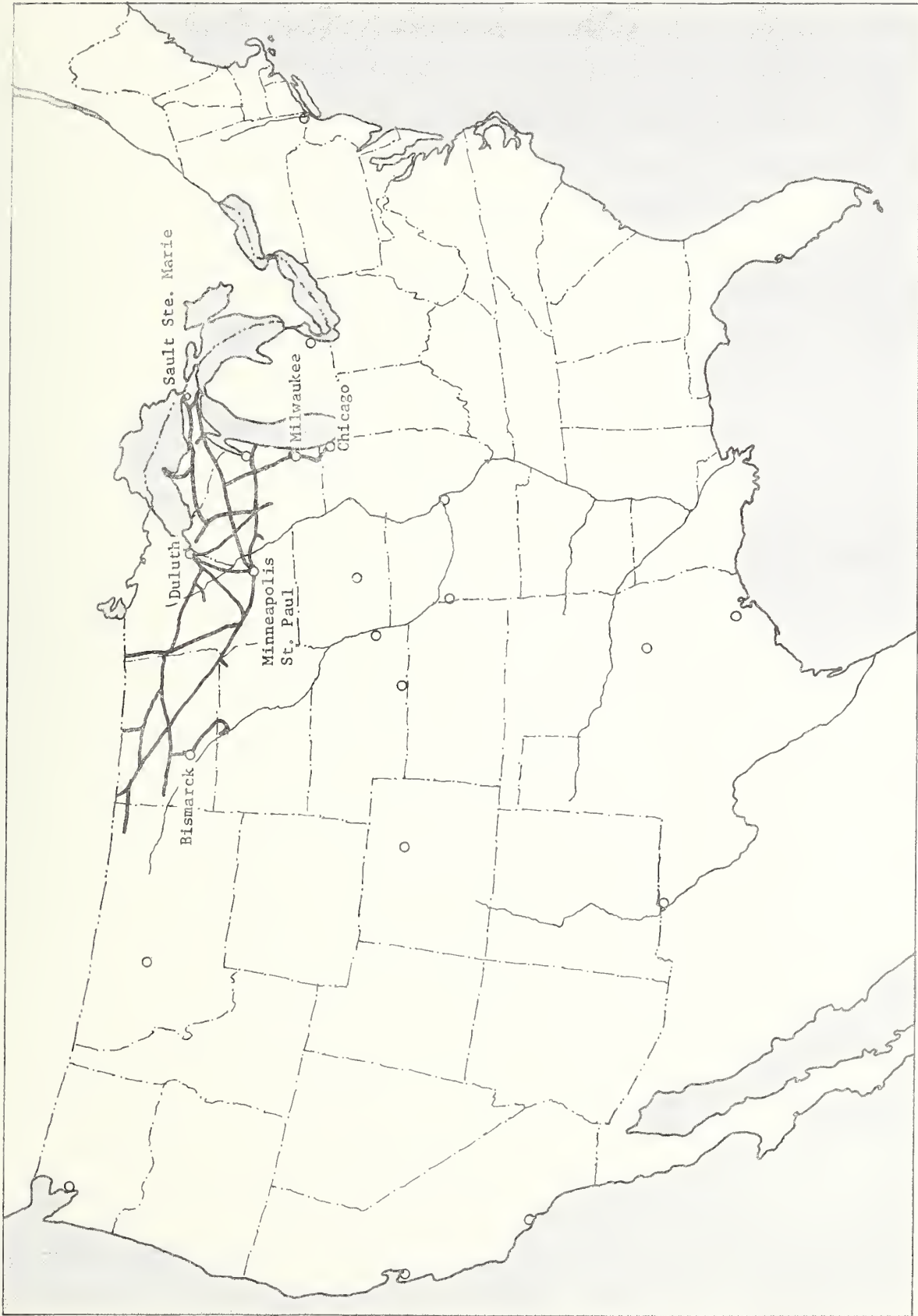


Figure 10. The Soo Line, 1974

Appendix A

LAND GRANTS

LAND GRANTS

This appendix attempts to show the tremendous magnitude of the land grant program. The map on the next page shows the land areas of the country granted to the railroads by the United States government. The shaded areas of the map represent regions within which railroads received large areas of lands, usually in alternate sections. The actual amount of land granted is a subject of dispute. One author, Robert Selph Henry, in his magazine article, "The Railroad Land Grant Legend in American History Texts" [26], written in 1945, presents two maps, one of which he states represents the exaggerated common belief concerning the extent of land grants and the other being his conception of the actual lands granted. His view was quickly challenged in 1946 by David Ellis and others in their article, "Comments on 'The Railroad Land Grant Legend in American History Texts'" [17]. In this article, some of the authors present reasons why Henry's estimates are too conservative while others maintain they are too generous. The map on page 56 is from the U.S. Department of the Interior, Information Bulletin [60]. This map, by showing only the general areas where lands were granted, presents the most accurate graphical description possible of land grants.

To provide a better idea of what land grants meant to individual railroads, Tables A-1 and A-2 are presented. These tables show the actual cash flow resulting to two railroads from the sales of land grants. Note that the cash sales are given in actual money of that time. They are not adjusted to current dollars. Therefore, the cash sales are, in most cases, worth even more than they at first appear to be worth in relation to other prices of their day.

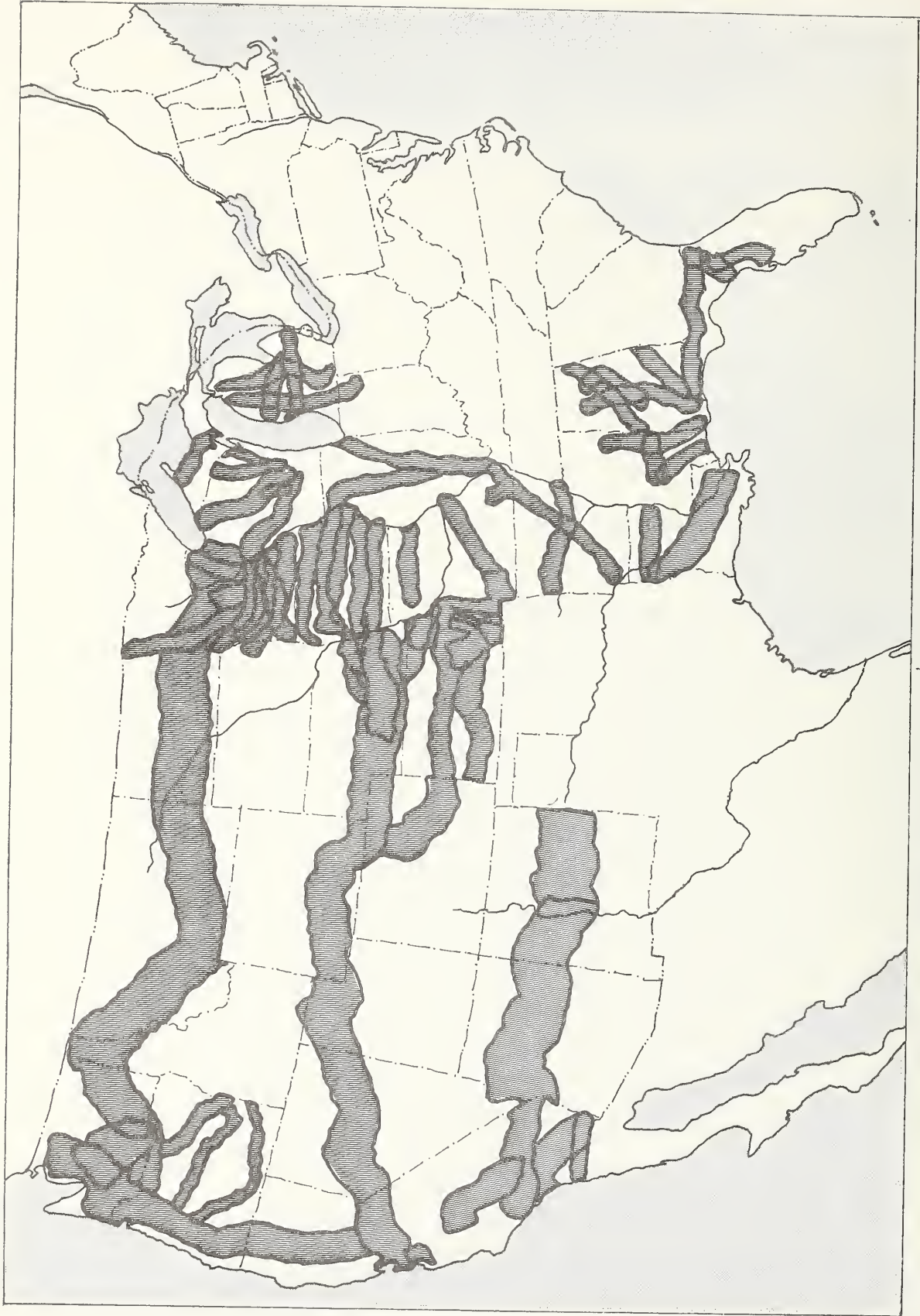


Figure 11. Land Grants Made by Congress to Aid in the Construction of Railroads
(Note: Dark-shaded areas indicate regions of the country from which large sections of land were granted, but do not indicate actual lands granted.)

Table A-1

GROSS LAND SALES BY THE CHICAGO, ROCK ISLAND, & PACIFIC RAILWAY AND
AVERAGE PRICE PER ACRE OF LANDS SOLD, ANNUALLY, 1871-1883

Year	Acres Sold	Value	Average Price Per Acre
1871	28,022	\$213,575	\$ 7.63
1872	13,964	107,693	7.75
1873	15,592	126,779	8.10
1874	24,538	200,152	8.20
1875	35,787	287,032	8.00
1876	67,380	532,961	7.90
1877	21,532	178,596	8.29
1878	12,961	108,663	8.30
1879	21,348	183,455	8.59
1880	86,860	747,691	8.60
1881	94,453	781,261	8.27
1882	64,078	617,935	9.64
1883	27,307	278,513	10.19
1884	12,851	123,795	9.63

SOURCE: Richard Cleghorn Overton. Burlington West: A Colonization History of the Burlington Railroad. Cambridge, Massachusetts: Harvard University Press, 1967, p. 531.

Table A-2

GROSS LAND SALES BY THE UNION PACIFIC RAILROAD AND AVERAGE PRICE
PER ACRE OF LANDS SOLD, ANNUALLY, 1871-1883

Year	Acres Sold	Value	Average Price Per Acre
1871	206,590	\$ 795,558	\$4.29
1872	172,108	755,431	4.26
1873	177,084	983,030	4.52
1874	236,230	1,099,467	4.65
1875	111,050	404,462	3.66
1876	125,905	375,541	2.98
1877	69,016	343,768	4.98
1878	318,903	1,557,082	4.88
1879	243,337	1,007,856	4.14
1880	176,202	850,089	4.82
1881	96,060	474,343	4.94
1882	292,159	1,250,364	4.28
1883	867,871	2,701,115	3.11

SOURCE: Richard Cleghorn Overton. Burlington West: A Colonization
History of the Burlington Railroad. Cambridge, Massachusetts:
Harvard University Press, 1967, p. 532.

Appendix B

GROWTH OF RAILROADS IN THE UNITED STATES

1840-1880

GROWTH OF RAILROADS IN THE UNITED STATES

1840-1880

Railroads have been built in the United States primarily for four reasons:¹

- 1) to provide fast overland routes between established markets hitherto connected by circuitous or slow routes;
- 2) to extend central markets by networks radiating from important trade centers;
- 3) to tap the vast potential trade of the Mississippi River Basin; and
- 4) to open for settlement and commerce inland regions formerly inaccessible.

In the first phase of railroad construction, up through 1840, lines were built primarily to connect the various established markets along the East Coast and the Eastern Great Lakes region. By 1850, they were being built to extend central markets, and by 1860, they were being expanded into the Mississippi River Basin. Finally, by 1870, railroads were being built for all four reasons. (See the maps on the next four pages.) All of the railroads in this study were originally constructed for the second reason, particularly to develop transportation routes to feed to the growing trade center of Chicago.

¹Most of the information in this section is taken from the book by Richard Cleghorn Overton, Burlington West: A Colonization History of the Burlington Railroad [45]. In particular, the maps on the next four pages dated, 1840, 1850, 1860, 1870, and 1880, are from pages 12, 24, 190, 310, and 394, respectively.



Figure 12. Railways in the United States, 1840

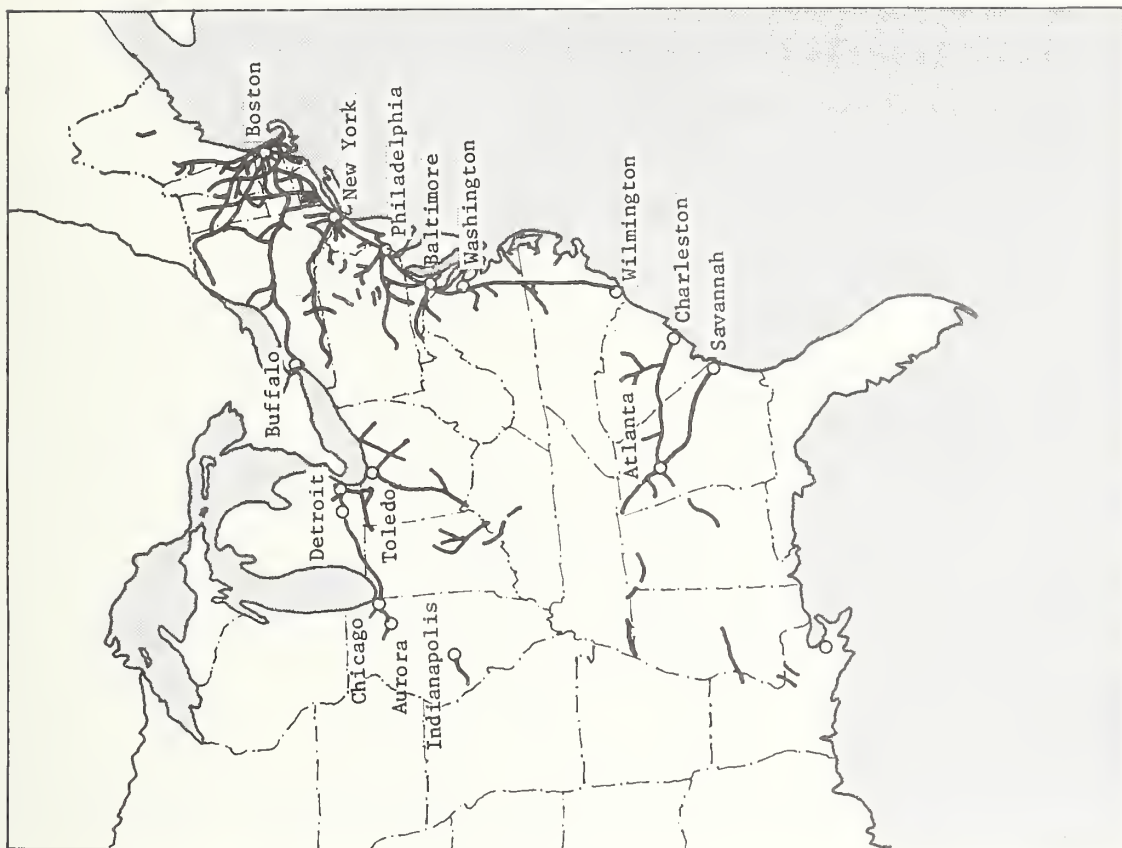


Figure 13. Railways in the United States, 1850

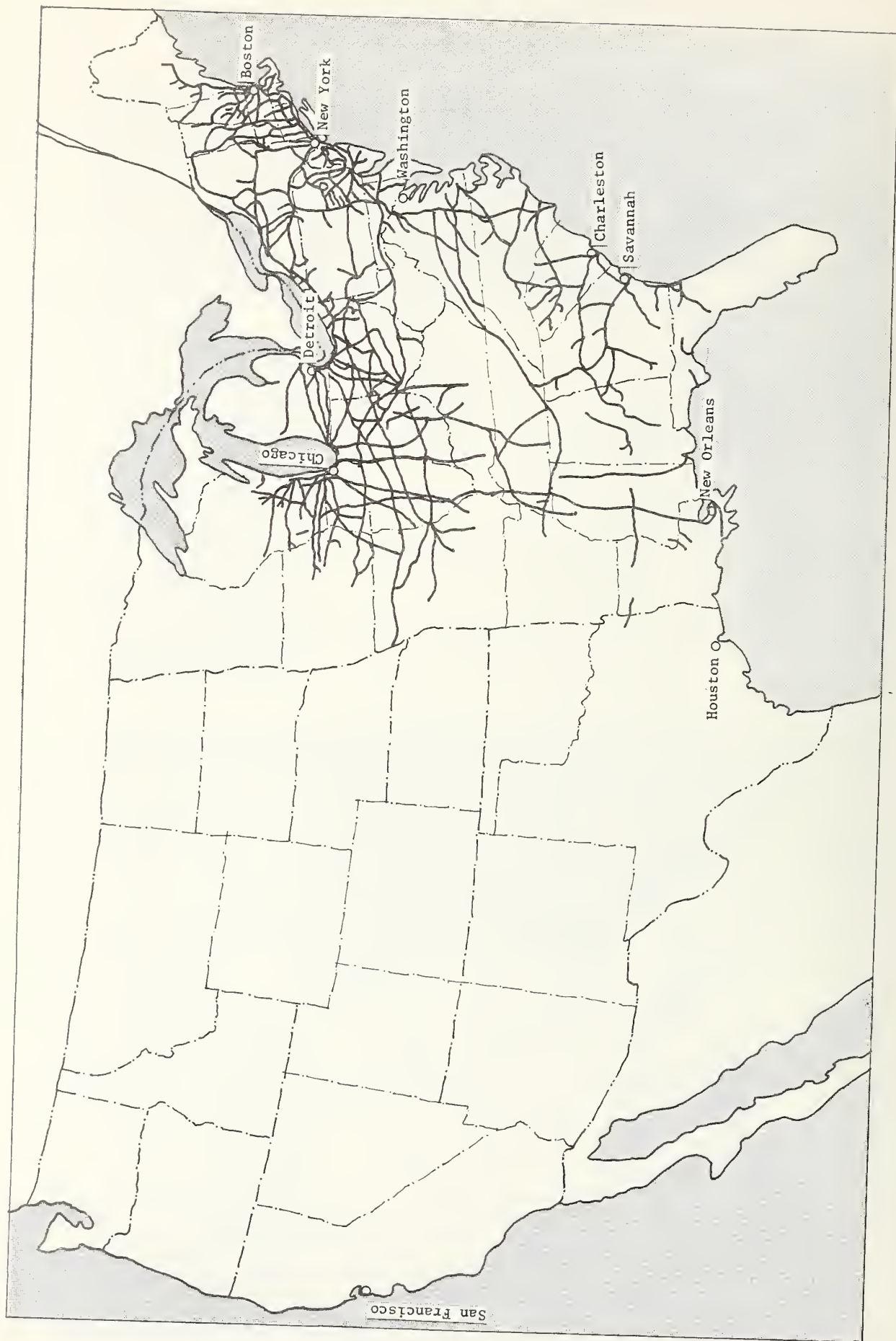


Figure 14. Railways in the United States, 1860

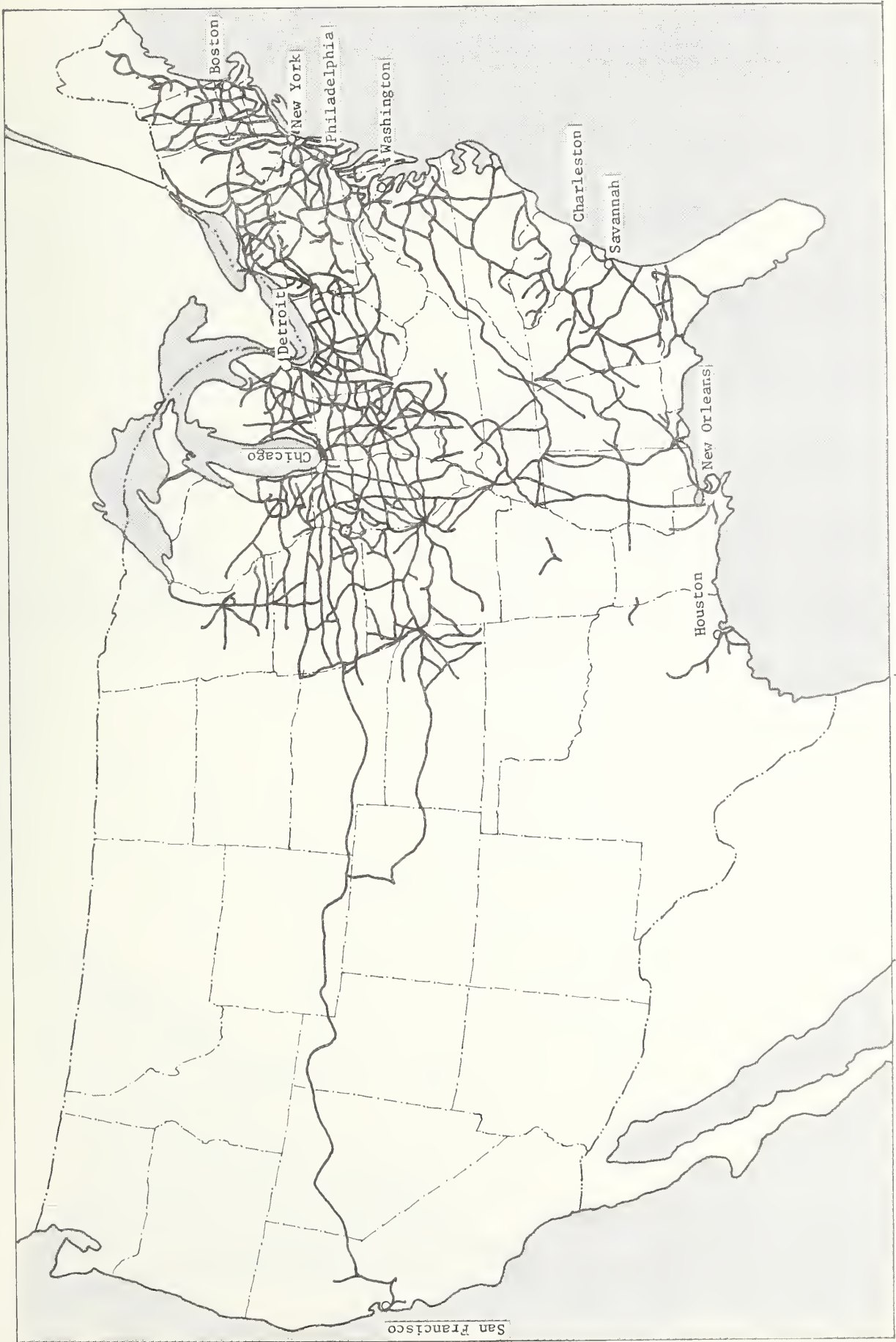


Figure 15. Railways in the United States, 1870

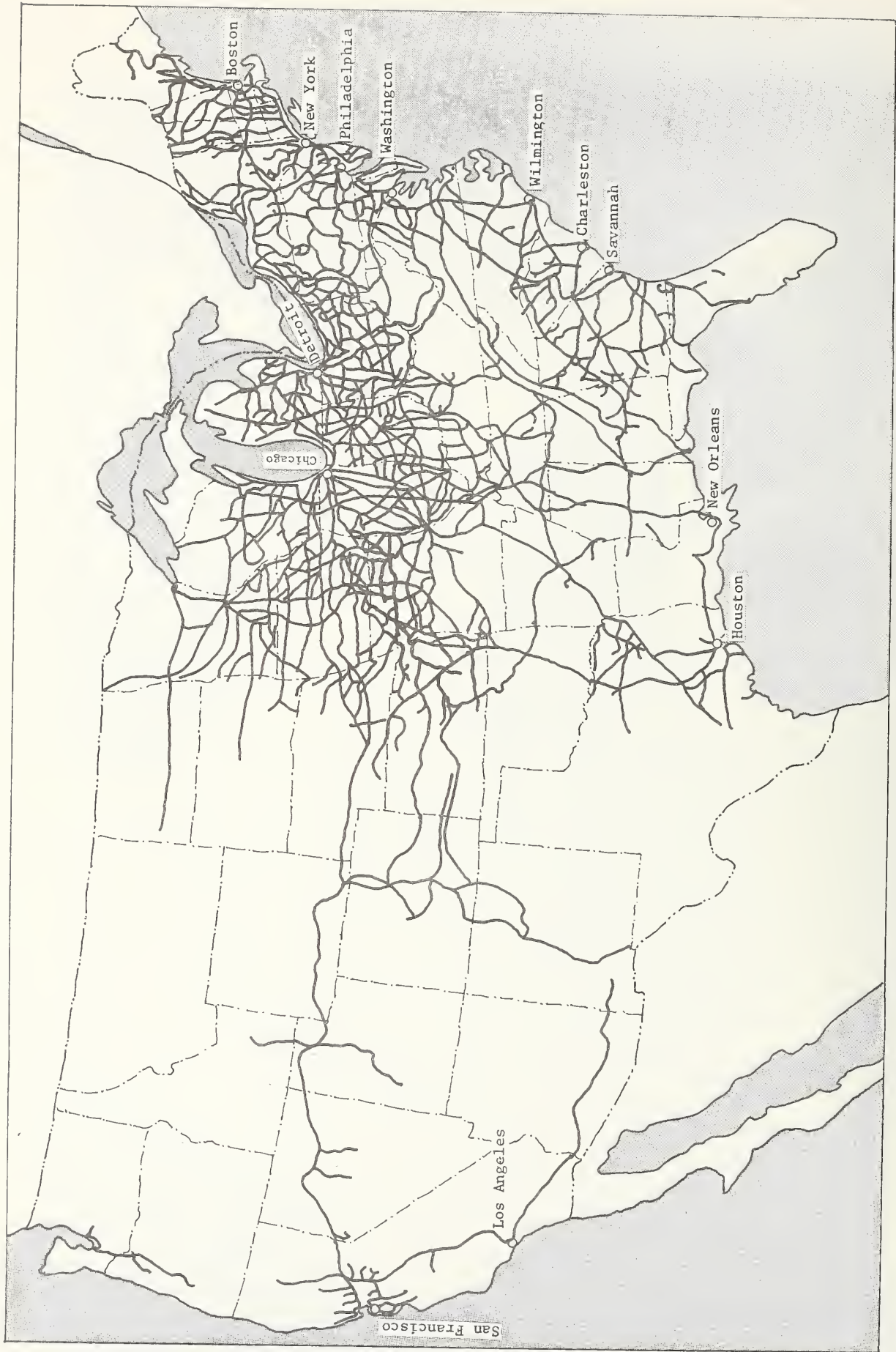


Figure 16. Railways in the United States, 1880

Appendix C

RAILROAD FREIGHT TONNAGE DATA

1915-1974

Table C-1

TITLES AND DATES OF MAJOR RAILROADS

Title	Date
Chicago & North Western	1860-Present
Chicago, St. Paul, Minneapolis, & Omaha	1866-Present
Pacific Coast	? -1969
Northern Pacific	1883-1969
Great Northern	1889-1969
Chicago, Burlington, & Quincy	1855-1969
Burlington Northern	1961-Present
Chicago, Milwaukee, & St. Paul	1874-1927
Chicago, Milwaukee, St. Paul, & Pacific	1927-Present
Chicago, Rock Island, & Pacific	1859-Present
Minneapolis, St. Paul, & Sault Ste. Marie	1848-1961
Wisconsin Central	1897-1961
Duluth, South Shore, & Atlantic	1886-1961
Soo Line	1961-Present

NOTE: Sources for all data in this appendix are the Annual Reports of individual railroads [4; 6; 7; 8; 9; 11; 16; 22; 39; 43; 48; 52; 63] and the railroad report summaries in the Interstate Commerce Commission's Annual Report on the Statistics of Railways in the United States [33].

Table C-2

FREIGHT TONNAGE --BY RAILROAD
CHICAGO & NORTH WESTERN SYSTEM, ROCK ISLAND LINE, AND MILWAUKEE ROAD
(thousands of tons)

Year	Chicago & North Western System		Rock Island Line	Milwaukee Road
	Chicago & North Western (1860-Present)	Chicago, St. Paul, Minneapolis, & Omaha (1866-Present)	Chicago, Rock Island, & Pacific (1859-Present)	Chicago, Milwaukee, St. Paul, & Pacific (1874-Present)
	Total	Total		
1974	83,515	n.a.	49,068	45,813
1970	71,382	n.a.	52,210	45,229
1965	61,228	n.a.	43,332	47,730
1960	54,112	n.a.	41,933	39,148
1955	56,231	12,371	40,191	45,481
1950	54,818	12,280	38,141	50,165
1945	55,383	12,531	41,937	52,326
1940	40,102	8,568	24,328	35,321
1935	35,096	7,952	22,346	34,358
1933	30,882	7,074	20,417	29,182
1930	54,236	11,104	37,375	49,653
1929	66,100	11,421	43,540	59,131
1925	61,421	11,278	36,103	55,932
1920	64,440	12,954	34,799	51,057
1915	46,759	9,809	28,485	40,344

n.a. = not available NOTE: Totals may not add due to rounding.

Table C-3

FREIGHT TONNAGE--BY RAILROAD, BURLINGTON NORTHERN SYSTEM
(thousands of tons)

Year	Burlington Northern System					Total
	Pacific Coast (?-1969)	Great Northern (1889-1969)	Northern Pacific (1883-1969)	Chicago, Burlington, & Quincy (1855-1969)	Burlington Northern (1961-Present)	
1974	--	--	--	--	148,793	148,793
1970	--	--	--	--	135,910	135,910
1965	n.a.	50,329	30,710	57,586	--	138,625
1960	209	49,644	26,197	49,248	--	125,296
1955	315	68,456	30,613	49,183	--	148,567
1950	n.a.	54,110	28,008	49,057	--	131,174
1945	n.a.	54,977	29,324	56,143	--	140,444
1940	362	40,048	18,543	31,014	--	89,966
1935	295	32,623	17,125	31,324	--	81,367
1933	253	19,883	15,111	28,602	--	63,850
1930	523	35,714	23,530	49,406	--	109,173
1929	663	44,142	28,567	56,326	--	129,698
1925	n.a.	38,162	26,770	51,506	--	116,438
1920	n.a.	38,501	28,129	57,301	--	123,932
1915	200	27,153	21,812	40,340	--	89,504

n.a. = not available NOTE: Totals may not add due to rounding.

Table C-4

FREIGHT TONNAGE--BY RAILROAD, SOO LINE SYSTEM
(thousands of tons)

Year	Soo Line System				Total
	Wisconsin ^a Central (1897-1961)	Duluth, South Shore, & Atlantic (1886-1961)	Minneapolis, St. Paul, & Sault Ste. Marie (1848-1961)	Soo Line (1961-Present)	
1974	--	--	--	27,325	27,325
1970	--	--	--	24,021	24,021
1965	--	--	--	21,254	21,254
1960	n.a.	2,770	16,298	--	19,068
1955	n.a.	3,147	18,184	--	21,331
1950	n.a.	3,243	18,355	--	21,599
1945	n.a.	2,793	17,963	--	20,756
1940	n.a.	2,145	12,611	--	14,756
1935	n.a.	2,009	10,306	--	12,315
1933	n.a.	1,352	8,963	--	10,315
1930	n.a.	2,966	15,384	--	18,350
1929	n.a.	4,277	19,094	--	23,371
1925	n.a.	4,611	18,684	--	23,294
1920	n.a.	3,921	16,625	--	20,545
1915	n.a.	2,859	13,898	--	16,757

n.a. = not available NOTE: Totals may not add due to rounding.

Table C-5

FREIGHT TONNAGE--A COMPARISON TABLE
(thousands of tons)

Year	Chicago & North Western	Burlington Northern	Rock Island Line	Milwaukee Road	Soo Line	Western	
						United States ^b (Total)	United States ^c (Total)
1974	83,515	148,793	49,068	45,813	27,325	1,049,615	2,880,426 ^d
1970	71,382	135,910	52,210	45,229	24,021	942,626	2,793,324
1965	61,228	138,625	43,332	47,730	21,254	880,557	2,741,707
1960	54,112	125,296	41,933	39,148	19,068	809,004	2,409,040
1955	68,601	148,567	40,191	45,481	21,331	912,908	2,745,379
1950	67,097	131,174	38,141	50,165	21,599	610,279	2,710,919
1945	67,914	140,444	41,937	52,326	20,756	654,739	2,961,789
1940	48,670	89,966	24,328	35,321	14,756	575,863	1,947,479
1935	43,048	81,367	22,346	34,358	12,315	403,371	1,502,590
1933	37,956	63,850	20,417	29,182	10,315	355,051	1,322,463
1930	65,340	109,173	37,375	49,653	18,350	624,250	2,179,015
1929	77,521	129,698	43,540	59,131	23,371	727,099	2,584,333
1925	72,698	116,438	36,103	55,932	23,294	672,210	2,463,725
1920	77,394	123,932	34,799	51,057	20,545	657,982	2,427,622
1915	56,567	89,504	28,485	40,344	16,757	494,097	1,828,692

NOTE: Totals may not add due to rounding.

NOTES FOR TABLES C-2 THROUGH C-5

NOTE: Exact figures may vary due to the following reasons. (1) It is a practice of the Interstate Commerce Commission to update yearly reports as new figures come in. An attempt has been made to use the most up-to-date figures available. (2) The Interstate Commerce Commission makes a distinction among Class I, II, and III railroads (by amount of freight carried, where Class I railroads are major lines and Class III railroads are small traffic lines). Where possible, aggregate figures are the total of all three. (3) The Interstate Commerce Commission also makes a distinction between revenue and non-revenue freight. Where possible, the total of both is given, but in some cases, including all Western United States and United States total figures, only revenue freight tonnage is listed.

^aWisconsin Central Railroad data are not available because the Wisconsin Central is a Class III railroad and the Interstate Commerce Commission does not publish individual Class III railroad data, nor does it require individual Class III railroads to publish their own detailed data.

^bRefers to Class I railroads only.

^cIncludes Classes I and II only, except for 1929 and 1933 figures, which are for Classes I, II, and III.

^dThe 1974 figure is actually for 1973.

A GUIDE TO THE BIBLIOGRAPHY
AND THE BIBLIOGRAPHY

A GUIDE TO THE BIBLIOGRAPHY

For each of the five railroads, a primary reference was used giving the history of that railroad. The historical material in this report was drawn mainly from these five books:

Chicago & North Western: Pioneer Railroad: The Story of the Chicago and North Western System by Casey and Douglas [5],

Burlington Northern: Burlington West: A Colonization History of the Burlington Railroad by Overton [45, an updated version of 46 and 47],

Milwaukee Road: The Milwaukee Road: Its First Hundred Years by Derluth [15],

Rock Island: Iron Road to Empire: The History of 100 Years of the Progress and Achievements of the Rock Island Lines by Hayes [24], and

Soo Line: Saga of the Soo: West from Shoreham. An Illustrated History of the Soo Line Railroad Company and Its Predecessors in Minnesota, the Dakotas, and Montana by Gjevre [21].

One other book was particularly useful for historical information:

The Story of American Railroads by Holbrook [29]. For a brief but complete history of each railroad, see Moody's Transportation Manual [40].

The Burlington Northern Railroad Company was formed in 1961. After eight years of working towards Interstate Commerce Commission approval, the Burlington, which had no railroad lines of its own, in 1969, merged with the Pacific Coast, the Northern Pacific, the Great Northern, and the Chicago, Burlington, & Quincy railroad companies, now called the Burlington Northern Railroad. All annual reports are so listed.

For specific statistical information, the annual reports of each railroad [4; 6; 7; 8; 9; 11; 16; 22; 39; 43; 48; 52; 63] provide very detailed data, but a more useful source is the Interstate Commerce

Commission's Annual Report on the Statistics of Railways in the United States [33], which summarizes the annual reports of the individual railroads. The Economics of Transportation by Locklin [36] gives a good account of competition, regulation, and railroad rate setting, while Railroad Leaders, 1845-1890: The Business Mind in Action by Cochran [12] goes into considerable detail on empire building. Railroad land grants are discussed in "The Railroad Land Grant Legend in American History Texts" by Henry [26], "Comments on 'The Railroad Land Grant Legend in American History Texts'" by Ellis and others [17], and Statement Showing Land Grants Made by Congress to Aid in the Construction of Railroads, Wagon Roads, Canals, and Internal Improvements, Together with Data Relative Thereto by the U.S. General Land Office [61].

The theme, "The Problem with Railroads Today Is . . .," introduced on pages 4-20 of this report is also discussed in American Railroads and the Transformation of the Ante-bellum Economy by Fishlow [18] and Enterprise Denied: Origins of the Decline of American Railroads, 1897-1917 by Martin [37].

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